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Govt of West Bengal

School Computer Education

VII

Logo

Fundamentals

Multimedia

Windows

Wordpad

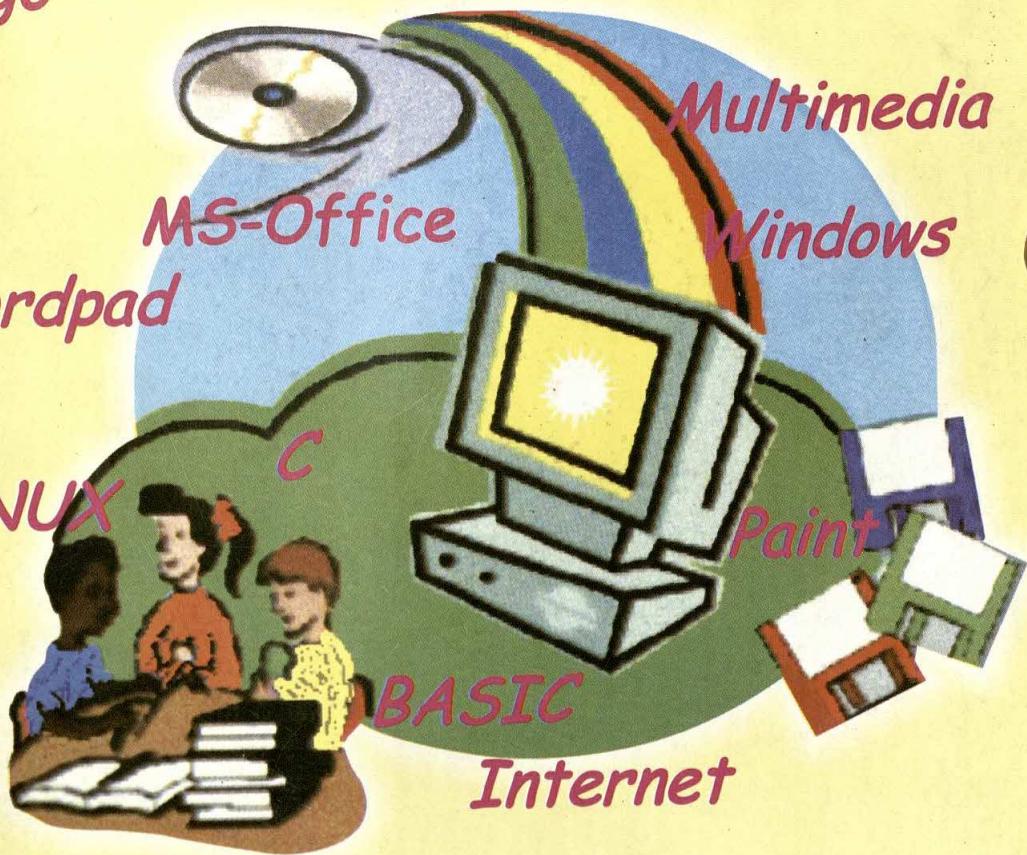
MS-Office

LINUX

BASIC

Paint

Internet



ACES Infotech Pvt. Ltd.



✓ 21 gift

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1

Introduction to Computers

Objectives:

At the end of this session, you will be able to:

- Identify the need for computer literacy
- Brief the history of computers
- List the advantages of using computers
- Identify the types of computers

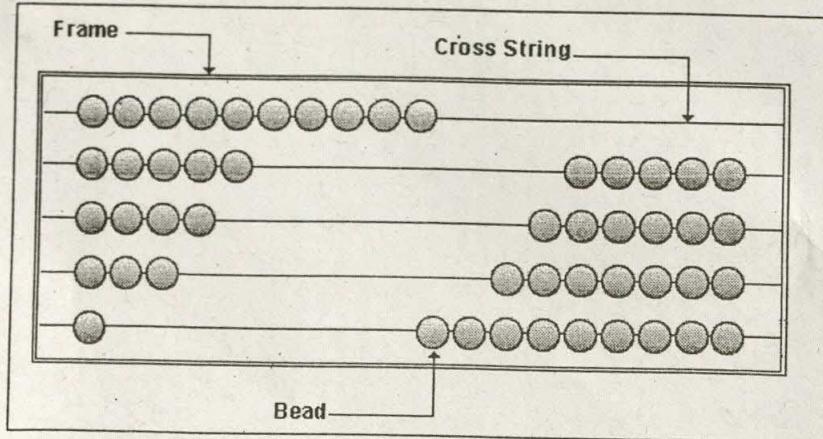
Need for Computer Literacy

To begin with, you must understand the impact of computers in the world today. Computers influence our lives in one way or the other. Airline reservations, payment of telephone and electricity bills, banking, medical diagnoses, weather forecasts...the list of services for which computers are used is almost endless. You would have probably noticed that some uses of computers have made your life easy. For example, you can book a train ticket in a few minutes or access information on any topic using the Internet.

However, there is something about the computer that might make you feel a little uneasy. Perhaps, you feel that a computer is more intelligent than you and is too difficult to use. You may be surprised to know that the computer cannot perform any task without your instruction. The computer needs to be instructed on exactly what it has to do.

History of Computers

The Chinese developed the first mathematical device that helped man in counting. This device was called the Abacus. As children, you would have played with the Abacus, which is shown in the following figure.

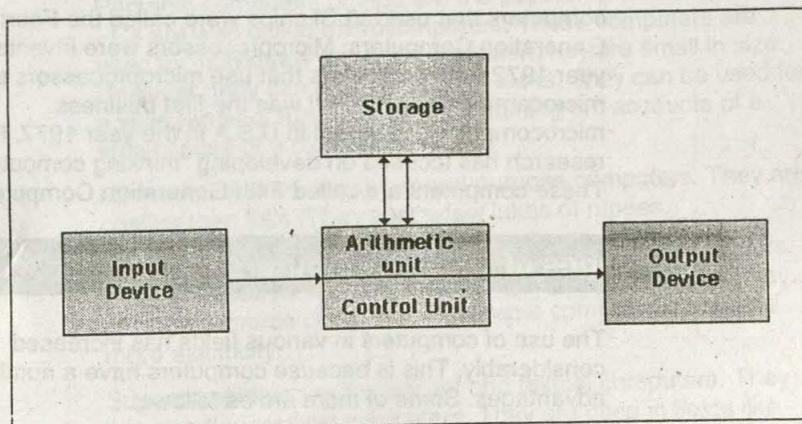


It is a rectangular frame with cross bars or strings. The strings have beads. There will be a few rows of such strings. For example, if you were to add 4 and 5 using this device, you first move the beads in all the rows to the left. You will then, move four beads to the right from the bottom row. This represents the first number of addition, 4. Then, move five beads from left to right. This represents the second number of addition. The number of beads on the right represents the sum of two numbers. This is a simple addition using Abacus. There were other such computing devices like the slide rule and Pascal's calculator.

Charles Babbage invented the first mechanical computer during the period 1830 to 1850. This computer performed basic arithmetic functions. It had the following five components:

- A storage unit that holds the numbers.
- An arithmetic unit, called Mill, to perform the arithmetic calculations.
- A control unit that controls the activities of the computer.
- An input device that gives the numbers and instructions to the computer.
- An output device that displays the result.

The components of the Babbage's computer are shown below:



After this first mechanical computer, the design of computers evolved over a period of time. These can be classified as follows:

- First Generation Computers
- Second Generation Computers
- Third Generation Computers
- Fourth Generation Computers
- Fifth Generation Computers

The U.S. Census Bureau developed the first business computer in the year 1951. This computer was called Universal Automatic Computer (UNIVAC). It used vacuum tube circuits for processing. The computers that used vacuum tube circuits were called the First Generation Computers. The vacuum tube circuits contained a filament that was heated to emit electrons, which are the basic components of an atom. Later, Bell Labs of U.S.A invented transistors that were used instead of vacuum tubes. Transistors are electronic circuits that are small in size and do not require any heating for emitting electrons. The computers that used transistors were called the Second Generation Computers. The Third Generation Computers used Large Scale Integrated (LSI) circuits for processing. The LSI circuits were invented in mid 1960s. LSI circuits integrate several circuit components into a single chip. Very Large Scale Integrated (VLSI) chips were invented in the year 1969. The computers that used VLSI chips were called the Fourth Generation Computers. Microprocessors were invented in the year 1972. The computers that use microprocessors are called microcomputers. APPLE II was the first business microcomputer developed in U.S.A in the year 1977. Recent research has focused on developing "thinking computers". These computers are called Fifth Generation Computers.

Advantages of Using Computers

The use of computers in various fields has increased considerably. This is because computers have a number of advantages. Some of them are as follows:

- Speed – Computers are faster than humans. The speed of the computer is measured in terms of Million Instructions Per Second (MIPS). It represents the

number of instructions that can be executed by the computer per second.

- Accuracy – The computers produce more accurate results than manual calculations. For example, computers provide accurate results for complex scientific calculations. This might not be possible if these calculations are done manually.
- Diligence – Human beings become tired and bored of repeatedly doing a work and tend to commit mistakes. However, computers never become tired or bored and therefore do not commit mistakes. This feature of working continuously without committing mistakes is known as diligence.
- Storage – Human brain stores information for future use. In a similar way, computers store large amounts of information for future use. Computers also enable you to retrieve specific information from the large pool of information. This is an important characteristic of computers.
- Cost – Computers reduce the amount of paperwork and human effort. This reduces cost.

Types of Computers

Personal computers or PCs are the popular form of computers. PCs are also called microcomputers. These computers are used by individuals and organizations. They are small in size. However, they can perform difficult tasks. They can be used for a wide range of functions like maintaining the accounts of a small house or a big organization.

Minicomputers are small general-purpose computers. They are costlier than PCs. They cost a few lakhs of rupees.

Mainframe computers are more powerful than minicomputers. They are used for large-scale jobs by big organizations. They cost a few crores of rupees. Mainframe computers consume more electricity.

Supercomputers are the largest and fastest computers. They are also the costliest computers. They are used in fields like science and defence. These computers are used for designing and launching missiles. There are very few supercomputers

throughout the world. India owns a series of supercomputers called PARAM developed by C-DAC.

Classroom Exercise

Fill in the blanks

1. _____ invented the first mechanical computer.
2. The U.S Census Bureau developed the first commercial computer called _____ in the year 1951.
3. _____ was the first business microcomputer.
4. The _____ invented the transistors that were used instead of vacuum tube circuits.
5. Supercomputers are used in fields like _____ and _____.
6. The speed of the computers is measured in terms of _____.
7. The ability of the computer to work continuously without getting tired is called _____.
8. In the computer developed by Charles Babbage, the arithmetic unit called the _____ performed the arithmetic operations.
9. Very large scale integrated chips were invented in the year _____.
10. Computers that use microprocessors are called _____.

True or False

11. Computers that use transistors are called Third Generation Computers.
12. APPLE II was developed in the year 1977.
13. Minicomputers are more powerful than mainframe computers.

Answer the following

14. List five fields in which computers are used.

15. What are the advantages of using computers?

16. Explain the various types of computers.

17. List the components of the computer developed by Charles Babbage.

Summary

- Computers were invented to help us in maintaining information
- Computers are used for providing services such as Airline reservations, payment of telephone and electricity bills, banking, medical diagnoses, and weather forecasts.
- Charles Babbage invented the first mechanical computer during the period 1830 to 1850.
- The U.S. Census Bureau developed the first commercial computer in the year 1951. This computer was called Universal Automatic Computer (UNIVAC) and it used vacuum tubes.
- The computers that used vacuum tube circuits were called the First Generation Computers.

- Bell Labs of U.S.A, invented transistors that were used instead of vacuum tubes.
- The computers that used transistors were called the Second Generation Computers.
- The computers that used LSI chips were called the Third Generation Computers.
- The computers that used VLSI chips were called the Fourth Generation Computers.
- Microprocessors were invented in the year 1972.
- The computers that used microprocessors are called the microcomputers.
- The advantages of using computers are speed, accuracy, diligence, storage, and cost.
- The types of computers are PCs, mainframes, minicomputers, and supercomputers.

2

Computer Overview

Objectives:

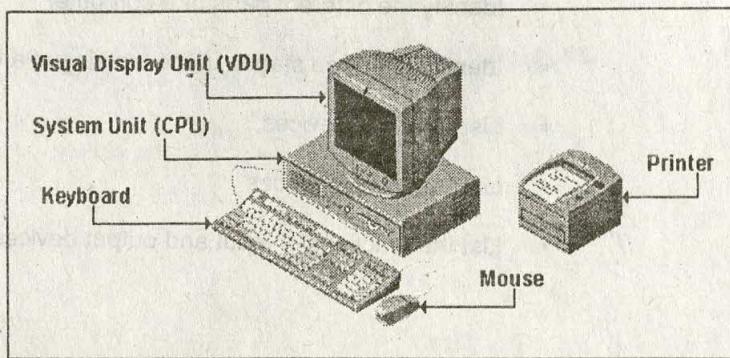
At the end of this session, you will be able to:

- Identify the different parts of a computer
- Identify the three stages in the working of a computer
- List the input devices
- List the output devices
- List the functions of input and output devices

Parts of a Computer

In the previous lesson, you learnt about the advantages and types of computers. You will now identify and learn about the various parts of a computer. A complete computer unit consists of the following parts: monitor, keyboard, system unit, mouse, and printer.

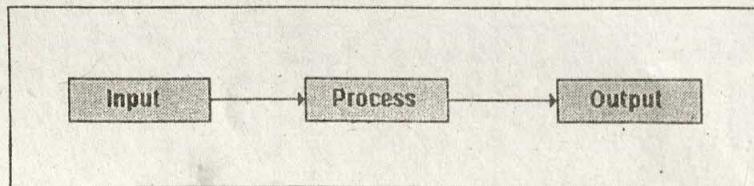
The devices connected to the system unit are called peripherals. The system unit and the peripherals are collectively referred to as hardware.



Working of a Computer

Most activities that we perform are based on the principle of the Input-Process-Output (IPO) cycle.

A picture of an IPO cycle is shown below.

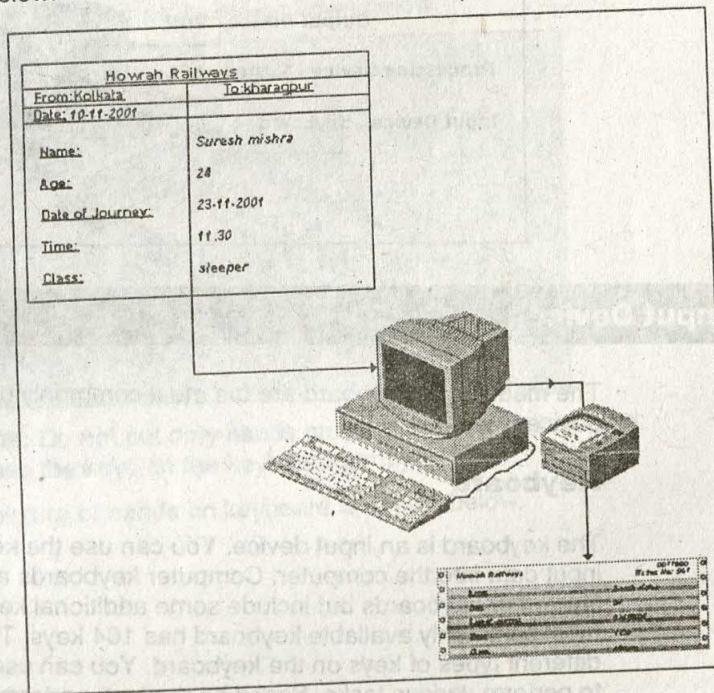


For example, if you want to prepare a cup of tea, you first collect all the input materials. The input materials are water, tea powder, milk, and sugar. This activity constitutes the Input stage

of the IPO cycle. The Process stage of the IPO cycle consists of the actual preparation of tea. Therefore, boiling the tea powder in milk and water and adding sugar is part of the Process stage. The output is the cup of tea.

Similarly, a computer also follows the IPO cycle. For example, if you want to reserve a ticket in a train to travel from Kolkata to Kharagpur, you first need to fill a reservation form. You need to fill in details such as your name, age, destination, date, and class of travel. The reservation clerk enters the data from the form into the computer. This is the Input stage of the cycle. The computer then checks for availability of seats. If seats are available, the reservation is made. This is the Process stage. If the reservation is confirmed, a ticket is printed. This is the Output stage.

A picture of the IPO cycle in the reservation system is shown below.

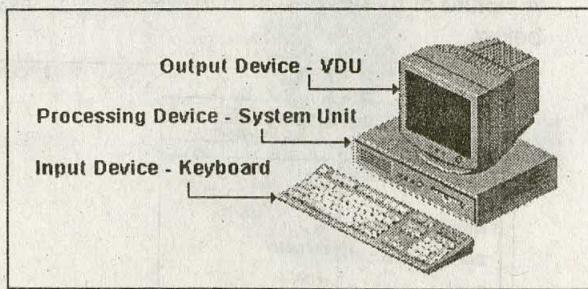


Let us now see how the various parts of the computer are related to the IPO cycle. The data on the reservation form is given as input to the computer using the keyboard. This data is

the input data and the keyboard is an input device. The system unit processes the data to check for availability of tickets. If seats are available, the system unit makes a reservation. The ticket can be displayed on the VDU or can be printed using a printer. Therefore, the VDU and the printer are output devices.

You have seen the different parts of the computer. Each part of the computer performs a different role. The parts that are used for entering data from different sources are known as input devices. The parts that are used to give output in various forms are known as output devices. Some parts are used to input as well as output data and are called input/output devices.

A picture of the input, output and processing devices of a computer are shown in the figure below.



Input Devices

The mouse and keyboard are the most commonly used input devices.

Keyboard

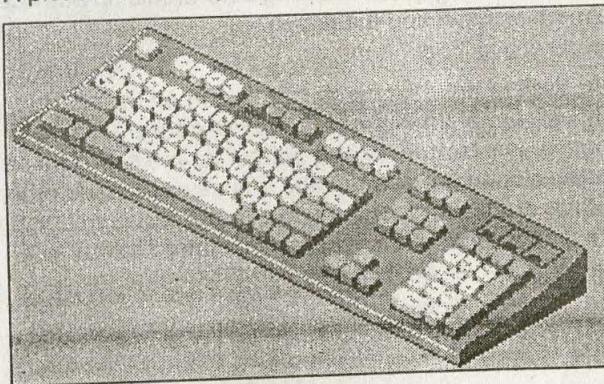
The keyboard is an input device. You can use the keyboard to input data into the computer. Computer keyboards are similar to typewriter keyboards but include some additional keys. The most commonly available keyboard has 104 keys. There are different types of keys on the keyboard. You can use these keys to perform various tasks. Based on the task performed, they are classified as follows: alphanumeric keys, punctuation keys, and special keys. Alphanumeric keys include all the alphabet and number keys on the keyboard. They are used to type alphabets and numbers. Punctuation keys include all the keys used for

punctuation. The colon (:), semicolon (;), and question mark (?) are some examples of punctuation keys. Special keys include the arrow keys, the function keys, and the control keys.

While working on a computer, you will notice a blinking point or a line on the VDU. This is the cursor. Whenever you press an alphanumeric or punctuation key on the keyboard, the respective character appears on the screen. This character is displayed at the point where the cursor is blinking and the cursor moves one position forward. For example, if you press the key "A" on the keyboard, it will display the character "A" on the screen at the point where the cursor is blinking. The cursor on the screen moves to the position after the character "A".

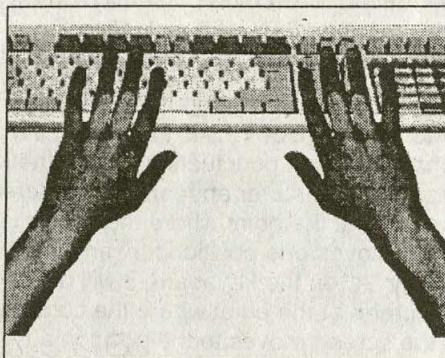
If you press any of the special keys on the keyboard, the related function is executed. For example, if you press the Up arrow key, the cursor moves up by one line.

A picture of the keyboard is shown below.



Note: Do not put dirty hands on the computer or keyboard.
Press the keys on the keyboard gently.

A picture of hands on keyboard is shown below.



Mouse

Mouse is an input device. It is connected to the system unit by means of a long cord. The long cord of this tiny device resembles a tail and the tiny device resembles a mouse. Hence, the device is called a mouse.

It is used to point and select an option on the VDU. If you move the mouse on a flat surface, you will notice a corresponding movement of an arrow or a pointer on the screen. The pointer on the screen is known as the mouse cursor. The shape of the pointer or cursor changes according to the task or location. Some of the common mouse cursors along with their descriptions will be discussed in a later chapter.

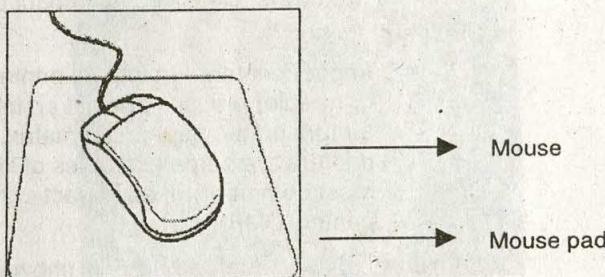
Picture of a standard mouse cursor is shown below.



A mouse may have one, two, or three buttons. The most commonly used ones have two buttons - left and right. The left button is the most frequently used button. For example, Computerwhiz, a computer game, has Read, Learn, and Play options on the screen. To play the game, you must select the Play option. To do this, you need to place the cursor on the Play option and click the left button of the mouse. Clicking on the mouse button enables you to select the option. Clicking on the left button enables you to select the Play option and play the game.

Note: It is a good practice to use the mouse pad instead of just any flat surface.

A picture of the mouse and mouse pad is shown below.



Output Devices

The monitor and the printer are the most commonly used output devices.

Monitor

The computer has a screen to display output. This computer screen is called Visual Display Unit (VDU) or monitor. The monitor of the computer resembles a television screen.

For example, whenever you play a computer game, you view the game on the monitor.

The system unit processes data given as input to the computer and gives an output, which is displayed on the monitor. The monitor can display text and graphics as output. It can display coloured as well as black and white output.

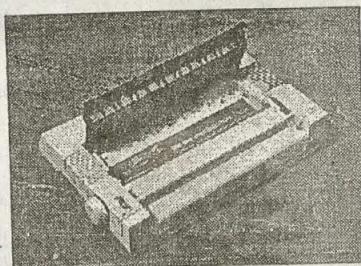
Printer

The printer is a commonly used output device. It is used to print the results of an operation performed by the computer. You can use the printer to obtain output on paper. Printers are classified as Character printers, Line printers, and Page printers. A Character printer prints one character at a time. The speed of a Character printer is measured in terms of characters per second (cps). A Line printer prints one line at a time. The speed of a Line printer is measured in terms of lines per second (lps). A Page printer prints one page at a time. The speed of a Page printer is measured in terms of pages per minute (ppm).

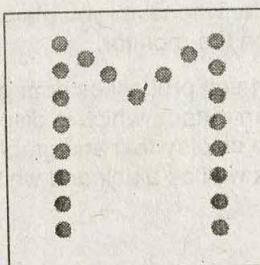
Printers are further classified as impact printers and non-impact printers.

- Impact printers - In impact printers, the typeface (head or needle) presses against an inked ribbon and makes a mark on the paper. Dot matrix, Daisy wheel, and Line printers are some examples of impact printers. The most commonly used impact printer is the Dot matrix printer (DMP).

A picture of a Dot Matrix printer is shown below.

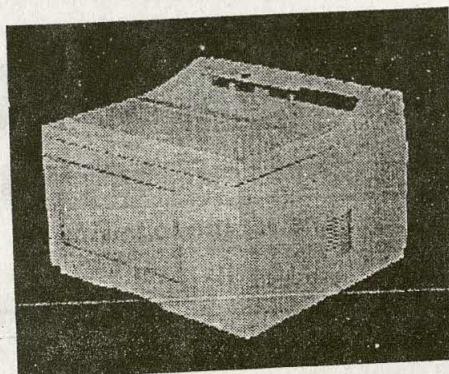


A picture of the output of a Dot matrix printer is shown below.



- Non-impact printers - In non-impact printers, there is no contact between the typeface (head or needle) and the paper while printing. Ink-jet printer and laser printer are some examples of non-impact printers. The most commonly used non-impact printer is the Laser Printer (LP). Laser printers are popular due to the high quality of the printout.

A picture of the Laser printer is shown below.



The differences between a dot matrix printer and a laser printer are given below.

| Dot Matrix printer | Laser printer |
|---|---|
| The dot matrix printer prints characters using dots. | The laser printer prints fully formed characters. |
| The speed of a dot matrix printer is measured in cps. | The speed of a laser printer is measured in ppm. |
| It prints approximately 200 – 300 characters in one second. | It prints approximately 4-20 pages in one minute. |
| It is very noisy. | It is not very noisy. |
| It is cheap. | It is expensive. |

Classroom Exercise

Fill in the blanks

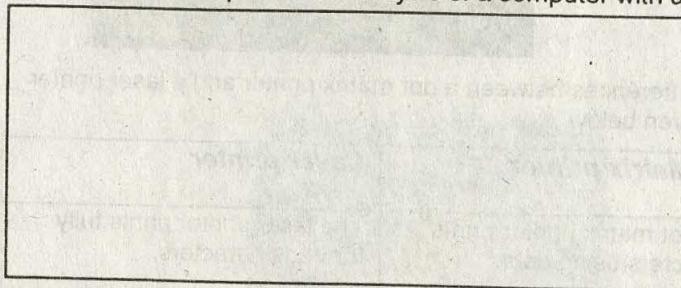
1. The keyboard is a _____ device.
2. The printer is an _____ device
3. The speed of a laser printer is measured in _____.
4. The dot matrix printer prints characters in the form of _____.

True or False

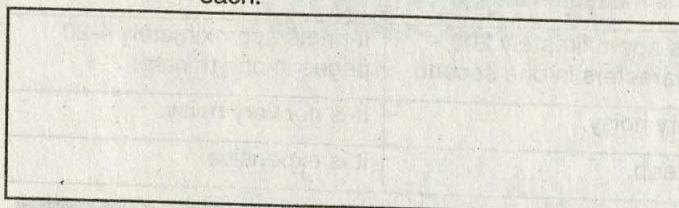
5. The mouse is an output device.
6. Ink-jet printer prints characters in the form of dots.

Answer the following:

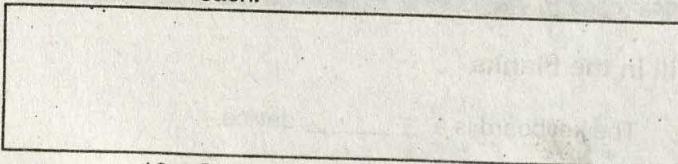
7. Explain the IPO cycle of a computer with an example.



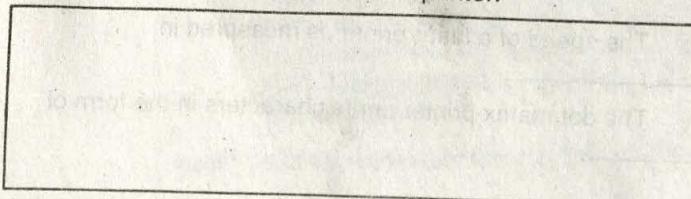
8. Name any two input devices and write one line about each.



9. Name any two output devices and write one line about each.



10. Give any two points of difference between a dot matrix printer and a laser printer.



Summary

- A complete computer unit consists of the following parts: keyboard, mouse, system unit, mouse, and printer.
- A computer works on the principle of Input-Process-Output (IPO) cycle.
- The devices connected to the system unit are called peripherals. The system unit and the peripherals are collectively referred to as hardware. Computer hardware consists of input devices, output devices, and input/output devices.
- The mouse and keyboard are the most commonly used input devices.
- The monitor and printer are the most commonly used output devices.
- The printers commonly used with a PC are the dot-matrix printer, the ink-jet printer, and the laser printer. They differ in terms of speed, cost, and quality of printing.

принципиально складну та складну відповідь. Але відповідь на це питання, якщо відповісти, буде відповідь на питання

— зважаючи на відсутність відповіді на це питання, якщо відповісти, буде відповідь на питання

— відповідь на це питання, якщо відповісти, буде відповідь на питання

— відповідь на це питання, якщо відповісти, буде відповідь на питання

— відповідь на це питання, якщо відповісти, буде відповідь на питання

— відповідь на це питання, якщо відповісти, буде відповідь на питання

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— відповідь на це питання, якщо відповісти, буде відповідь на питання

— відповідь на це питання, якщо відповісти, буде відповідь на питання

3

Storage Devices

Objectives:

At the end of this session, you will be able to:

- State the purpose of a processor
- Identify the components of a system unit
- State the purpose of memory
- Define the terms byte, kilobyte, megabyte, and gigabyte
- Calculate the number of bytes required to store a word
- State the purpose of RAM and ROM
- State the need for external storage devices
- State the purpose of a floppy disk and a hard disk
- Identify the difference between a floppy disk and a hard disk
- Identify the functions of disk drives



System Unit

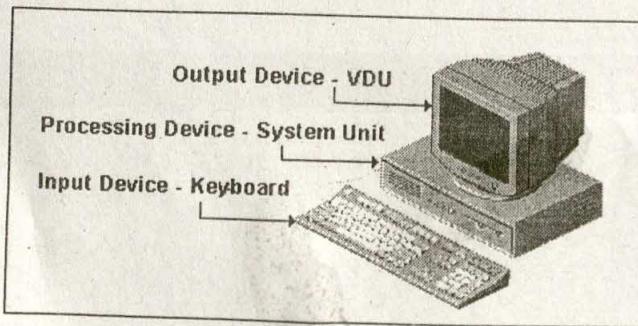
A computer receives information from input devices, stores the information in memory, processes it in the system unit, and displays the results as an output. The entire processing takes place in the system unit of the computer. The box-like structure that contains all the necessary programs and instructions to run the system is called the system unit.

A computer works like the human brain. Most of the activities that the human brain performs are based on the principle of Input-Process-Output (IPO) cycle. The computer also uses the same principle.

For example, assume that your teacher asks you to add two and three. What will you do? You will first collect all the input data. Here, the question asked by the teacher contains the input data. The process stage of this IPO, consists of actual addition of the two numbers. This takes place in the brain. The instructions needed to add these two numbers are already saved in memory. The brain uses these instructions, adds the two numbers, and gives the output. The answer to the question is the output data. The output is the sum of two and three, which is equal to five.

Similarly, the system unit in the computer receives data from a input device, saves data in a storage device, processes it, and displays the output. Hence, the system unit is an Input/Output (I/O) or processing device.

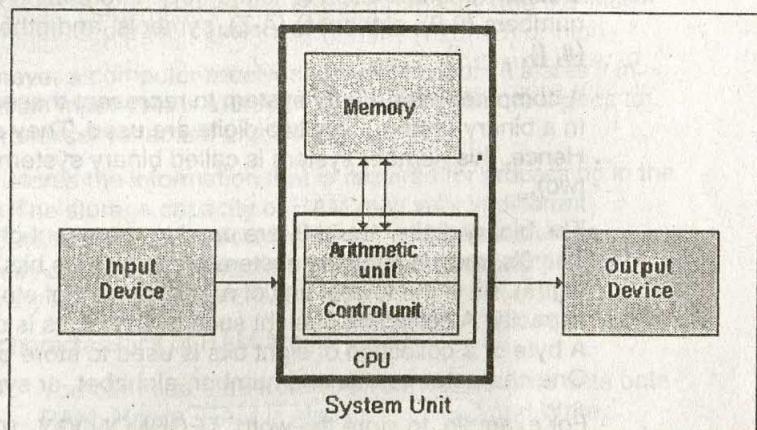
Given below is a figure showing the system unit as a processing device.



This unit consists of two parts, a Central Processing Unit (CPU) and Internal Storage (Memory).

Given below is a block diagram that represents the system unit. Here, the system unit comprises of the CPU and the Memory. The Arithmetic Logic Unit (ALU), the Control unit, and the registers are a part of the CPU.

A picture of the block diagram of an IPO cycle is shown below.



Processor

Processor or Central Processing Unit (CPU) is the most important part of a computer. The actual processing of data takes place in the CPU.

The CPU has an Arithmetic Logic Unit (ALU), a Control Unit, and special storage areas called registers. ALU performs all the arithmetic and logical operations. These operations are performed in the registers. The Control Unit controls and manages the operations of the CPU.

The speed of a computer is measured in Million Instructions Per Second (MIPS). The speed of a standard PC is 0.4 MIPS. This means that the CPU of the PC can execute 0.4 million instructions in one second.

Storage Capacity

The number of characters that can be stored in a computer is called the storage capacity of the computer. A computer stores a variety of information in its memory. Information includes numbers (0-9), alphabets (A-Z), symbols, and other characters (#, {}, '~, ^).

A computer uses binary system to represent these characters. In a binary system, only two digits are used. They are 0 and 1. Hence, this number system is called binary system (bi means two).

The binary digits, 1 and 0, are used to represent characters. The 0's and 1's in binary system are known as bits (binary digits). Bit is the lowest unit of measurement of storage capacity. A collection of eight such binary digits is called a byte. A byte or a collection of eight bits is used to store one character. One character means one number, alphabet, or symbol.

For example, to store the word, TECHNOLOGY, 10 bytes would be required. Similarly, to store the phone number 4853748, 7 bytes would be required.

Just as metres and kilometres are used to measure distances, bytes and kilobytes are used to measure the storage capacity of a computer. Other commonly used measurement units are megabyte and gigabyte.

One Kilobyte (KB) is approximately equal to 1000 bytes (B). One Megabyte (MB) is approximately equal to 1000 kilobytes (KB). One Gigabyte (GB) is approximately equal to 1000 Megabytes (MB).

Memory

A computer works like the human brain and the computer memory is similar to the memory in human beings.

The computer uses two types of storage or memory. Some are for internal storage and some for external storage.

The part of the system unit where your programs and other necessary information are stored is called Internal storage. Internal storage is also called the main memory of the computer. The function of memory is to

save the data to specific locations on storage devices and retrieve those data when they are needed.

The system unit uses two types of memory for internal storage. They are Random Access Memory (RAM) and Read Only Memory (ROM).

Random Access Memory

You have seen that the system unit contains a CPU and a storage area. One portion of the storage area consists of RAM and the other portion consists of ROM.

Whenever a computer receives any information, it stores it in the RAM. Input data is stored in this memory before it goes to the processor for actual processing.

RAM stores the information that is required for processing in the CPU. The storage capacity of RAM may vary in different computers. Typically, a RAM will have an internal storage capacity of 640,000 characters or more. The capacity of RAM can vary from 640 KB to 64MB.

The characteristics of RAM are as follows:

- You can read data from RAM as well as write data onto RAM. Hence, RAM is also called Read and Write Memory.
- Information stored in RAM is lost if the computer is switched off. Hence, RAM is volatile.

Read Only Memory

Read Only Memory (ROM) contains all the instructions that are needed for starting a computer. These instructions cannot be erased or modified. They can only be executed.

The characteristics of ROM are as follows:

- You can only read data from ROM. Hence, ROM is called Read Only Memory.
- Information stored in ROM is not lost if the computer is switched off. Hence, ROM is non-volatile.

External Storage Media

Just like the human brain, the internal storage capacity of a computer is limited.

The internal storage of a computer is also called the main memory. Suppose you want to store data permanently, you need some device where data will not be lost even if the computer is switched off. External storage can be used for permanent storage of data. External storage is also called the secondary memory. External storage is any storage other than the main memory.

Take an example of a telephone diary. All of you must have used a telephone. Each telephone has a unique number. So, each of you will have different telephone numbers. Each one of you will surely remember your telephone number because you have your number stored in your memory. It is very difficult to remember the phone numbers of all your friends. Hence, you write the telephone numbers in your telephone diary. In this example, the telephone diary is the external storage and your brain is the internal storage.

The most commonly used media for external storage are:

- Floppy disks
- Hard disks

You can read from and write on to hard disks and floppy disks. Hard disks and floppy disks are also Input-Output (I/O) devices, but because they are primarily used for external storage, they are considered storage devices. The other devices used for external storage are CD-ROMs, magnetic tapes, and punch cards.

Floppy Disk

A floppy disk is also known as a diskette or a floppy.

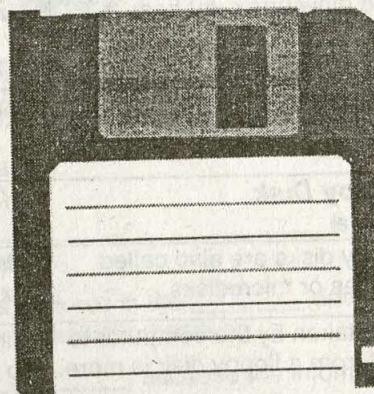
Types of floppy disks

You will find floppy disks of two different sizes: 5½ and 3½ inches. Currently, the 3½-inch floppy disk is the most commonly used device for external storage.

3½-inch floppy disk

A 3½-inch floppy disk is also called as microdisk. Some floppy disks can store data on one side and some can store data on both sides. Depending on the storage capacity, the 3½-inch floppy disk can be either double-density (720 KB) or high-density (1.44 MB). These floppy disks are small and easy to carry. They are not very flexible and hence, are more reliable when compared to the 5½ floppy.

The front view of a 3½-inch floppy disk is displayed in the following figure.



Floppies are made up of a flexible material. Heat, dust, and improper handling can easily damage the floppies. Hence, it is very important to observe the following precautions whenever you are using floppies.

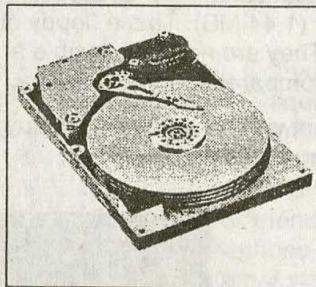
- Never bend the floppies. It may cause physical damage and hence loss of data.
- Always keep the floppies inside a paper cover. Do not expose it to dust and heat.

Hard Disks

The hard disk is located in the system unit. It is made up of a collection of disks known as platters. These platters are sealed in a vacuum disk and located in the system unit.

Whenever you save data in a computer, it is stored on a hard disk. Also, when you copy data from a floppy disk to the computer the data is saved on the hard disk.

A picture of a hard disk is shown below.



The differences between a floppy disk and a hard disk are given in the table below.

| Floppy Disk | Hard Disk |
|--|--|
| Floppy disks are also called floppies or microdisks. | Hard disks are also called fixed disks. |
| Time taken by the computer to read from a floppy disk is more. | Time taken by the computer to read from a hard disk is less. |
| More prone to damage by heat, dust and improper handling as it is made of a flexible material. | Less prone to damage as it is within the system unit. |
| Can be used to store data amounting to 720 KB or 1.44 MB. | Can be used to store far more data than floppy disks. They can be used to store data in the range 20 MB to a few GB. |
| Cheap | Costly |

Disk Drives

Now that you have seen the two most commonly used external storage media, you can look at the special device required to read from and write onto the external storage media.

The computer has a special device to read from and write onto these storage media. This device is called the disk drive. The disk drive is a part of the system unit. The disk drive performs the function of reading data from the disk as well as writing data onto the disk. Hence, disk drive is an Input-Output (I/O) device.

The drive for a floppy disk is called the floppy drive. You can read and write information to a floppy disk using the hardware device called the floppy drive.

Floppy and hard drives are examples of input and output devices as the CPU can read from and write onto them.

Classroom Exercise

Fill in the blanks

1. _____ is also called Read and Write memory.
2. Input data is stored in the _____ drive before it goes to the processor for actual processing.
3. RAM is _____, because the information stored in RAM is lost if the computer is switched off.
4. One Gigabyte is approximately equal to _____ bytes.
5. Two kilobytes is approximately equal to _____ bytes.
6. One byte is equal to _____ bits.
7. The _____ inch floppy disk is also called as microdisk.
8. The hard disk is made up of a collection of disks known as _____.

True or False

9. The basic instructions that are needed for starting a computer

are stored in Random Access Memory.

10. The actual processing of data in a computer takes place in the internal storage area.
11. Read Only Memory is non-volatile.
12. Byte is the smallest unit of measurement of storage capacity in a computer.
13. Match the words with the number of bytes required to store them.

| Word | No. of bytes |
|------|--------------|
|------|--------------|

COMPUTERS

5

5000\$

9

Musical

12

Non-volatile

7

Answer the following

14. List the parts of a computer

15. What is the function of an Arithmetic and Logic Unit?

Arithmetic and Logic Unit (ALU) is a digital circuit that performs arithmetic and logical operations on binary data. It is a fundamental component of the central processing unit (CPU).

16. State two differences between RAM and ROM.

RAM (Random Access Memory) and ROM (Read-Only Memory) are two types of computer memory. RAM is volatile memory, which means it loses its data when power is removed. ROM is non-volatile memory, which means it retains its data even when power is removed. RAM is used for temporary storage of data and programs, while ROM is used for permanent storage of programs and data.

17. Name any two external storage devices and write one line about each.

Two common external storage devices are the Hard Disk Drive (HDD) and the Solid State Drive (SSD). Both are used for storing large amounts of data. An HDD uses a magnetic disk to store data, while an SSD uses solid-state memory chips.

18. State two differences between a floppy disk and a hard disk.

A floppy disk is a removable storage medium that uses magnetic storage to store data. It is a smaller, less capacity storage device than a hard disk. A hard disk is a fixed storage device that is part of the computer's internal hardware. It has a much larger capacity than a floppy disk and is faster at reading and writing data.

Summary

- The computer uses the principle of Input-Process-Output (IPO) cycle.
- It receives information from input devices, stores the information in memory, processes it in the processor, and displays the results as an output.

- The central processing unit (CPU) is the most important part of the computer. The actual processing of data takes place in the CPU.
- The computer uses two types of memory for internal storage, Random Access Memory (RAM) and Read Only Memory (ROM).
- Random Access Memory (RAM) or main memory stores the information that is required for processing in the CPU.
- Read Only Memory (ROM) contains all the instructions that are needed for starting a computer.
- The most commonly used devices for external storage are floppy disks and hard disks.
- The disk drive performs the function of reading data from the disk as well as writing data onto the disk.

4

Computer Applications

Objectives:

At the end of this session, you will be able to:

- List the types of computer applications
- Identify the characteristics of business applications
- Identify the characteristics of online applications
- Identify the characteristics of real time applications
- Identify the characteristics of scientific applications

Computer Applications

A computer can be made to do a particular work by writing instructions in the language the computer understands. These set of instructions are called programs. A computer application consists of a group of such programs. You have seen that computers are used in various fields. This is possible by creating computer applications for those fields. These computer applications can be classified into one of the following categories:

- Business applications
- Online applications
- Real time applications
- Scientific applications

Business Applications

Business applications deal with large volumes of input and output data. However, the amount of processing done on the data is very less. Business applications are used for various purposes including maintenance of accounts, maintenance of raw materials, and processing examination marks.

You will now see how an application for processing examination marks works. Assume that your school has a computer centre, which processes your examination marks. After the examinations, your class teacher enters your marks in a marks register. This register is given to the computer centre. Similarly, the marks register of all the other classes in the school are given to the computer centre. The computer centre clerk enters your marks into the computer using the input devices.

After the marks are input into the computer, the computer processes the marks. It starts validating the data. For example, it checks whether a value entered is greater than 100 or lesser than zero. After validating, the computer checks whether a student has scored less than the required pass mark. The computer then calculates the total marks scored by each student and compares the total marks of all the students and calculates the ranks.

The student who has scored the maximum total is awarded the first rank; the one with the next highest mark is awarded the second rank, and so on.

The application then generates the mark sheet for each student. It can also generate reports, such as the average marks of all the students in a subject, and percentage of students who failed.

Online Applications

Online applications receive input data, process them, and produce results immediately. Examples of online applications are those used for railway reservation, airline ticketing, and banking.

You will now see how a railway reservation application works. Assume you want to book a ticket in a train from Kolkata to Siliguri. You first need to fill a reservation form containing details such as, name, age, sex, and date of travel. Few years back, there were separate counters for each place. You had to go to specific counters to book tickets for specific places. The reservation clerk used to maintain a manual register for each train. In the register, he would check if seats are available in the required train on the required date. If seats were available, he would write your details from the reservation form into the register and provide you the ticket. If you were cancelling a ticket, he would delete your details from the register. When another person wanted to book a ticket, he would write the details above the cancelled ticket. Manual reservation had created lots of confusion. There were situations when a seat was booked for two people or when a seat was left without booking. Moreover, with increasing number of trains, the number of counters and the number of registers maintained increased. The online railway reservation application solved these problems. You no longer need to use specific counters for specific places. Also, you can book a ticket in any train running between any two places. That is, you can book a ticket from Siliguri to Guwahati from any counter in Kolkata. The reservation process is very easy. You need to fill the reservation form and give it in any booking counter. The reservation clerk enters the details from the form to the computer. The computer checks if seats are available in the required train on the specified date. If available, it produces the ticket as the output. If

not, the reservation clerk can check for alternative trains in which seats are available.

Real Time Applications

Real time applications accept and process data. The output of processing is used to control the working of an activity. Real time applications are used in manufacturing industries such as, chocolates, automobile, and chemicals. They reduce the amount of human effort. They are also used in industries where the environment is too dangerous for human beings. One such example is the nuclear power station.

You will now see how a real-time application for manufacturing chocolate works. Assume that chocolates are manufactured using milk and cocoa as raw materials. The raw materials are fed using machines. The quality of the chocolates may vary depending on the machines used in the process. Manual control of quality in such cases is very difficult. Therefore, a real time computer application is used to control the quality. The computer stores the quantity of milk and cocoa required for manufacturing the chocolates. The application determines the quantity of milk and cocoa to be input to the machine. It then determines the quality of the output chocolate. The application checks the quality of the output. If the chocolates are not of the required quality, the application changes the quantity of milk and cocoa. It varies the quantity of the raw materials until the desired quality is obtained.

Scientific Applications

Scientific applications involve a lot of calculation. They generally take few inputs, but perform complex operations on the data. Scientific applications are used in fields such as space research, geological studies, and, weather research. Computer applications in space research help scientists to design space crafts. They are used to predict earthquakes. They also help in identifying locations of natural resources.

Classroom Exercise

Choose the correct answer

1. Business applications deal with large/small volumes of data.
2. Banking application is an example of online/real time application.
3. Scientific/business applications involve a lot of complex calculations.
4. In real time/scientific applications, the output of processing is used to control the working of an activity.

Answer the following

5. List the types of computer applications.

6. What are the characteristics of a business application?

7. Give three examples of online applications.

8. List some fields in which scientific applications are used.

9. Explain the working of a real time application.

Summary

- The computer applications can be classified into business applications, online applications, real time applications, and scientific applications.
- Business applications deal with large volumes input and output data. However, the amount of processing done on the data is very less.
- Examples of business applications include maintenance of accounts, keeping track of raw materials, and examination marks processing.
- Online applications receive input data, process them and produce results immediately.
- Examples of online applications are those used for railway reservation, airline ticketing, and banking.
- Real time applications accept and process data. The output of processing is used to control the working of an activity.
- Real time applications are used in manufacturing industries such as, automobile and chemicals.
- Scientific applications involve a lot of calculation. They generally take few inputs.
- Scientific applications are used in fields such as, space research, geological studies, and weather research.

5

Introduction to Windows

Objectives:

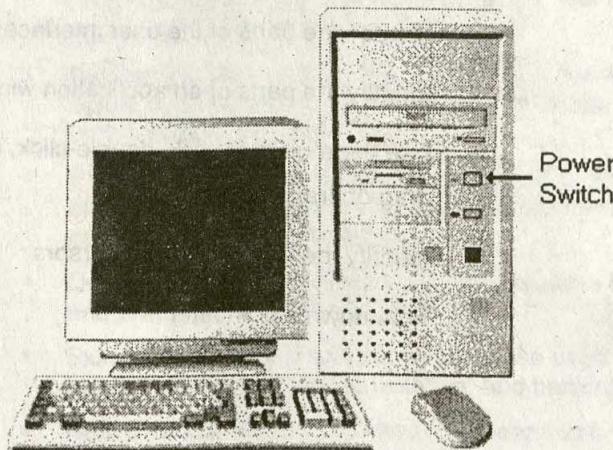
At the end of this session, you will be able to:

- Start a computer
- Identify the parts of the user interface of Windows 98
- Identify the parts of an application window
- Use the mouse to click, double-click, right-click, and drag operations
- Identify the various mouse cursors
- Shut down a computer

Windows 98 is a product of Microsoft. Windows 98 provides a **Graphical User Interface (GUI)** for interacting with the computer. A GUI helps you perform tasks on the computer by clicking with the mouse on various icons and buttons.

Starting a Computer

To start the computer, locate the power button or switch on the computer's cabinet. When you push the power button or switch, electricity is supplied to the computer. The following figure displays a power switch on the computer's cabinet.



As the computer starts, it checks the memory and the connections of hardware devices. After the checks are over, the startup screen of Windows 98 is displayed, as shown in the following figure.



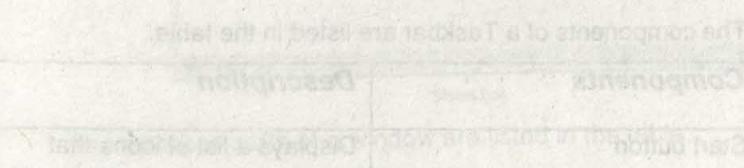
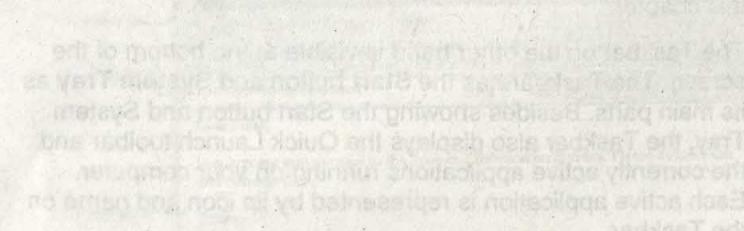
When your computer completes its startup process, you will find yourself looking at a screen displaying the Windows 98 interface.

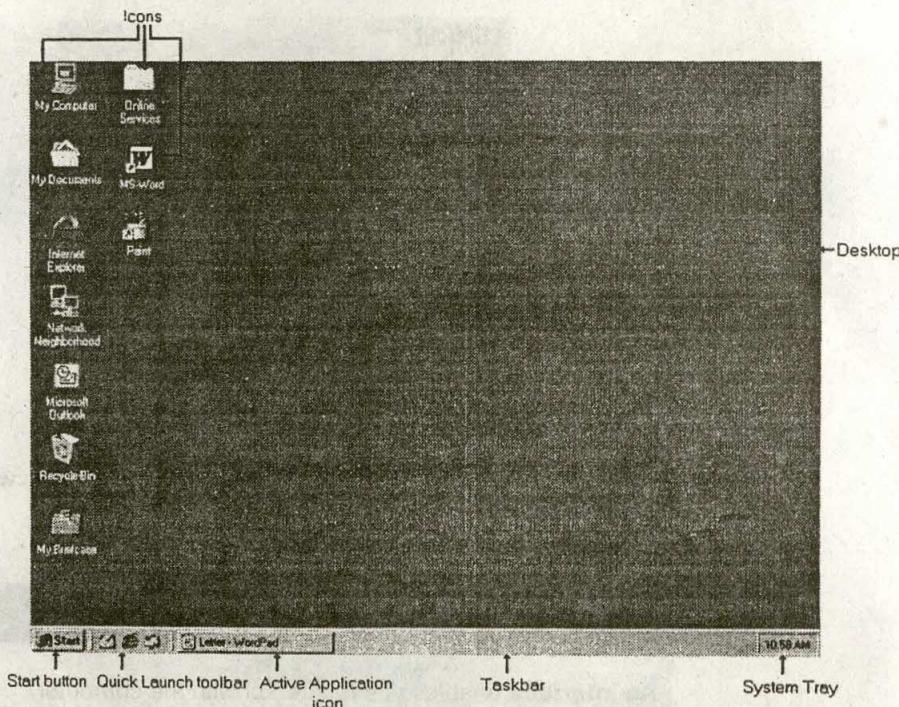
Understanding the User Interface

An **interface** enables you to interact with the computer.

The two main parts of the Windows 98 interface are

- Desktop
- Taskbar





The desktop has tiny pictures called **icons** on it. Each icon represents an element of Windows, such as a disk drive, application, directory, or document. The icons on the desktop are usually present on the left side of the screen. These icons give you access to different functions when you double-click on them with a mouse. You will learn how to use the mouse later in this chapter.

The Taskbar on the other hand is visible at the bottom of the screen. The Taskbar has the **Start** button and **System Tray** as its main parts. Besides showing the Start button and System Tray, the Taskbar also displays the Quick Launch toolbar and the currently active applications running on your computer. Each active application is represented by its icon and name on the Taskbar.

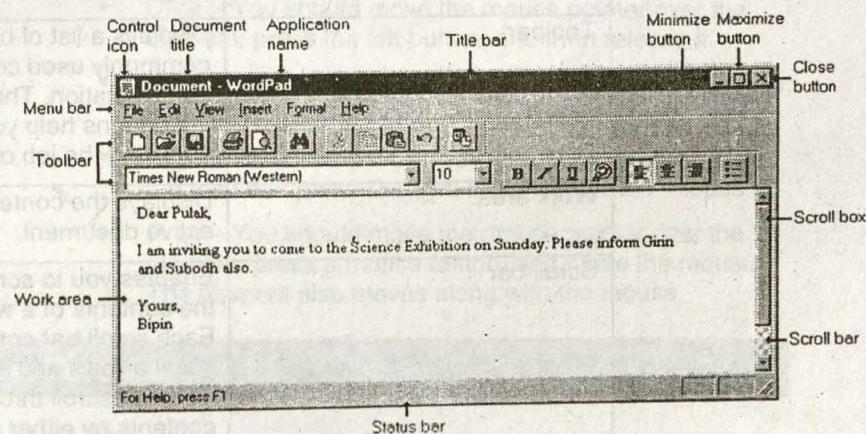
The components of a Taskbar are listed in the table.

| Components | Description |
|-------------------|-------------------------------|
| Start button | Displays a list of icons that |

| Components | Description |
|-------------------------|---|
| | enables you to access all the applications available on your computer. |
| System Tray | Displays icons of applications that are running in the background, such as the clock. |
| Quick Launch toolbar | Displays shortcuts to your frequently used applications. This feature has been added in Windows 98. The Quick Launch toolbar is handy, because it enables you to select some commonly used Internet-related applications. |
| Active application icon | Displays the icon of an active application. |

Parts of a Window

A **window** is a rectangular area on your desktop that enables you to view an application or a document. You can open, close, move, and change the size of a window.



The standard parts of a window are listed in the table.

| Parts | Description |
|-----------------|---|
| Title bar | Displays the title of the document and the name of the application. |
| Control icon | Displays a list of commands to control the size and location of the window. The Control icon is present at the left of the title bar. |
| Maximize button | Maximizes a window to cover the entire desktop. The Maximize button is present at the right of the title bar. |
| Minimize button | Minimizes a window to an icon on the Taskbar. The Minimize button is present at the right of the title bar. |
| Close button | Closes a window. The Close button is present at the right of the title bar. |
| Menu bar | Displays a list of commands used in the application. The Menu bar is present below the title bar. |
| Toolbar | Displays a list of buttons for commonly used commands in an application. The icons on the buttons help you in guessing the job of the button. |
| Work area | Displays the contents of the active document. |
| Scroll bar | Enables you to scroll through the contents of a window. Each scroll bar contains two scroll arrows and a scroll box. You can scroll through the contents by either clicking on the scroll arrows or dragging the scroll box. The scroll bar |

| Parts | Description |
|------------|--|
| Status bar | appears if the window is too small to show the entire contents of the work area. |
| Status bar | Displays the status of an application. The Status bar appears at the bottom of a window. |

Using the Mouse

Before you start exploring the desktop and the Taskbar, you need to know how to use a mouse. You use the mouse as a pointing device to point at elements on a computer screen.

A mouse has two buttons – left and right. The left button is the commonly used button. In Windows 98, you can also use the right button.

The motion of the mouse controls the motion of a **pointer** or **cursor** on the screen. The pointer or cursor changes its shape depending on the task and its location.

The various operations that can be done using a mouse are as follows:

- Click – You should move the mouse pointer over the element, press the left button, and then release it.
- Double-click – You should move the mouse pointer over the element and press the left button twice.
- Right-click – You should move the mouse pointer over the element, press the right button, and then release it.
- Drag – You should move the mouse pointer over the element, press a mouse button, and move the mouse. The element also moves along with the mouse.

Mouse Cursors

While working in Windows, the shape of the pointer or cursor changes according to the task or location. Some of the common

mouse cursors are given in the following table along with their descriptions.

| Cursors | Description |
|---------|---|
| | This is the usual mouse pointer on the screen. |
| | This pointer is displayed when the system is busy performing a task. |
| | This pointer is displayed when you are moving a window. |
| | This pointer is displayed when you are selecting text. |
| | This pointer is displayed when you increase or decrease the width of a window. |
| | This pointer is displayed when you increase or decrease the height of a window. |

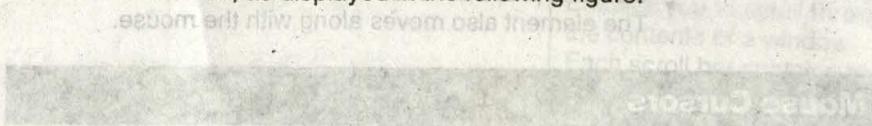
Shutting Down a Computer

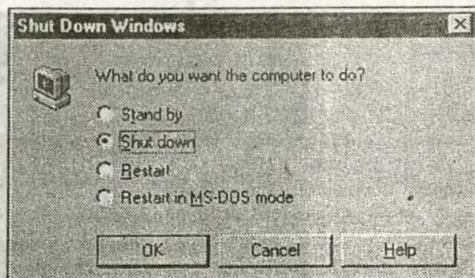
An improper shutdown means loss of data. When data is lost, you will not be able to recover it.

To shut down the computer, you should perform the following steps:

1. Click on **Start** button.
2. Click on **Shut Down....**

A dialog box titled **Shut Down Windows** appears on the screen, as displayed in the following figure.





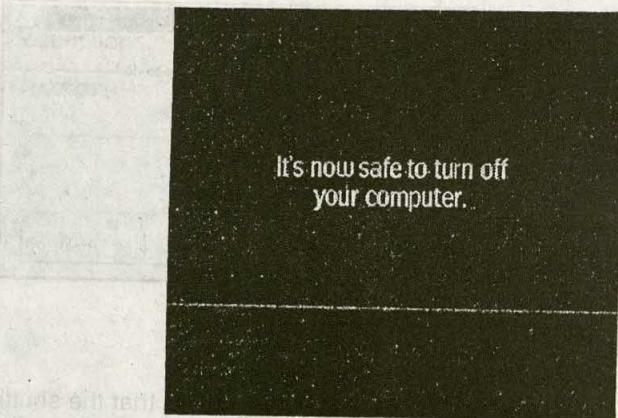
3. Click on **Shut down**.

4. Click on **OK**.

Windows displays a screen to indicate that the shutting up process has begun. The screen is displayed in the following figure.



Once the system gets shut down, a message appears on the screen, which informs you to turn off your computer. The message is displayed in the following figure.



It's now safe to turn off
your computer.

Note: The last two screens may not appear on all the computers.

Classroom Exercise

Fill in the blanks

1. The main components of a Taskbar are _____ and _____.
2. A _____ is a rectangular area on your desktop that enables you to view an application or a document.
3. The _____ displays a list of commands to control the size and location of the window.
4. The _____ displays a list of buttons for commonly used commands in an application.
5. The four operations that can be done using a mouse are _____, _____, _____, and _____.

True or False

6. The System Tray displays a clock.
7. The  pointer is the usual mouse pointer.

Answer the following

8. What are the various parts of a window?

9. Explain the role of any three mouse cursors?

10. How do you shut down a computer?

Summary

- You can start the computer by turning on the power switch.
- Windows 98 provides a **Graphical User Interface (GUI)** for interacting with the computer.
- The desktop has tiny pictures called **icons**. Each icon represents an element of Windows such as a disk drive, application, directory, or document.
- The Taskbar has the **Start button** and **System Tray** as its main parts.
- A **window** is a rectangular area on your desktop that enables you to view an application or a document.
- The various operations that can be done using a mouse are click, double-click, right-click, and drag.
- The shape of the mouse cursors changes according to the task and its location.

Machine Room Session

Machine Room Exercise

1. Start the computer and open the window of WordPad application.
2. Identify the various parts of the window and show it to your instructor.
3. Shut down the computer.

6

Drawing Using Paint Program

Objectives:

At the end of this session, you will be able to:

- Identify the various tools used in Paint program
- Draw pictures using the Paint program

In the previous chapter, you learned about how to start and stop a computer. You also learned about the features of desktop and Taskbar. In addition, you learned about the parts of a window.

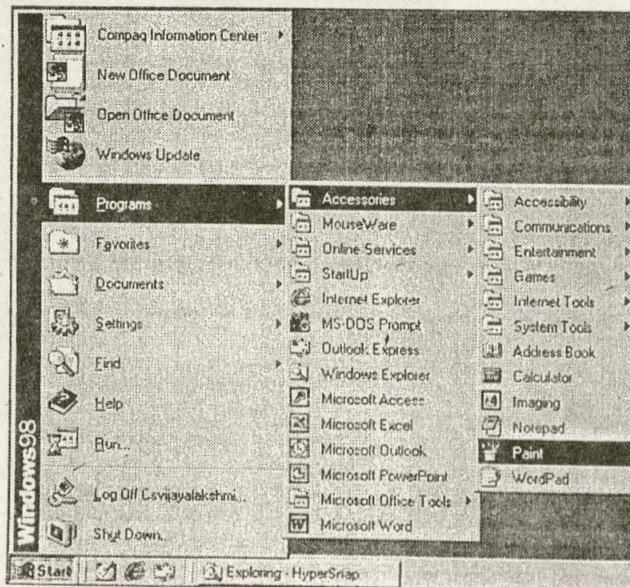
The Paint Program

Windows 98 provides you with a painting program called Paint. Paint is used to create, edit, and view pictures.

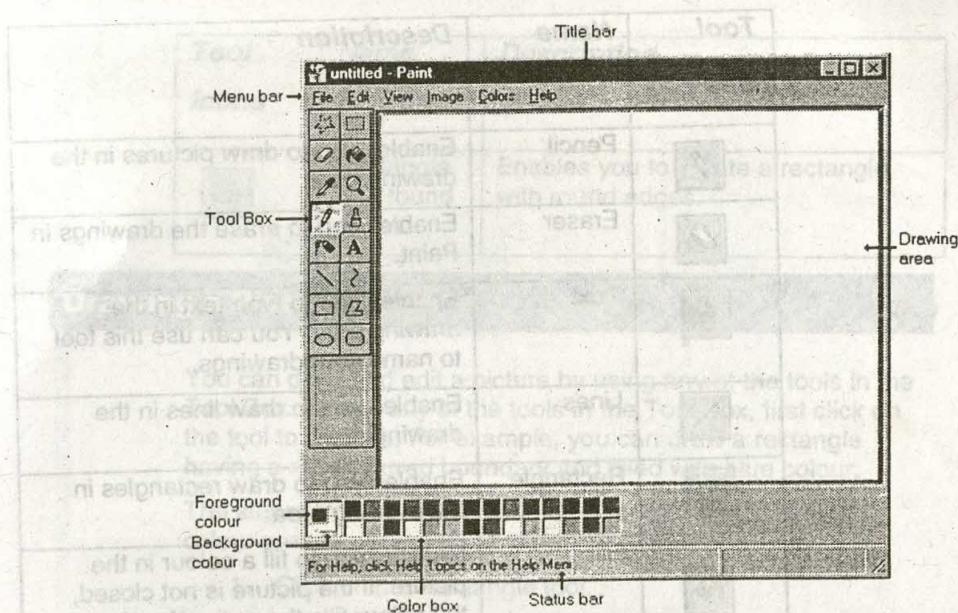
To open the Paint program, you need to perform the following steps.

1. Click on **Start** button.
2. Select **Programs, Accessories**, and click on **Paint**.

The steps are displayed in the following figure.



The Paint program starts and a window is displayed.



The parts of the Paint window are listed in the table.

| Parts | Description |
|--------------|---|
| Drawing area | Enables you to draw pictures. |
| Tool Box | Contains all the drawing tools. |
| Color Box | Contains colours for colouring the drawing area |
| Title bar | Displays the name of the window. The usual name for a Paint window is untitled - Paint . |
| Menu bar | Contains a list of commands. |
| Status bar | Displays the status of the application. |

The tools and their functions are listed in the table.

Drawing Using Paint Program

| Tool Icons | Name | Description |
|---|-------------|---|
|  | Pencil | Enables you to draw pictures in the drawing area. |
|  | Eraser | Enables you to erase the drawings in Paint. |
|  | Text | Enables you to type text in the drawing area. You can use this tool to name your drawings. |
|  | Lines | Enables you to draw lines in the drawing area. |
|  | Rectangle | Enables you to draw rectangles in the drawing area. |
|  | Fill | Enables you to fill a colour in the picture. If the picture is not closed, the colour fills the entire drawing. |
|  | Air Brush | Enables you to spray colour on a picture. |
|  | Eye Dropper | Enables you to copy a colour from one object to another in a drawing. |
|  | Selection | Enables you to make a selection of an irregularly shaped area. |
|  | Selection | Enables you to make a selection of a rectangular area. |
|  | Zoom | Enables you to magnify an area of the drawing. |
|  | Brush | Enables you to paint an area of the drawing or object. |
|  | Curve | Enables you to create curves. |
|  | Polygon | Enables you to create polygonal shapes. |
|  | Ellipse | Enables you to create an elliptical shape. |

| Tool Icons | Name | Description |
|---|----------------------------|---|
|  | Rectangle with round edges | Enables you to create a rectangle with round edges. |

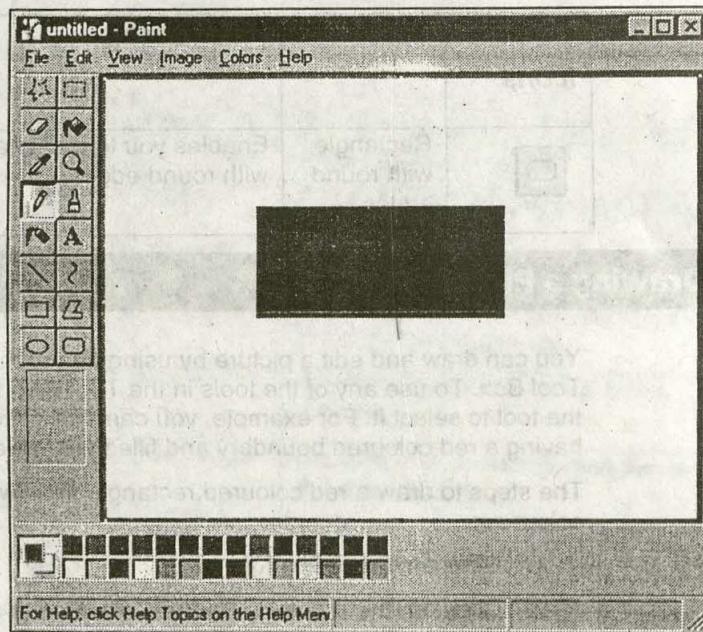
Drawing a Picture

You can draw and edit a picture by using any of the tools in the Tool Box. To use any of the tools in the Tool Box, first click on the tool to select it. For example, you can draw a rectangle having a red coloured boundary and filled with blue colour.

The steps to draw a red coloured rectangle filled with blue colour are:

1. Click on the Rectangle tool.
2. Click on the red colour in the Color Box to select the colour of the rectangle.
3. Move the mouse to the drawing area.
4. Click and drag to draw the rectangle.
5. Click on the Fill tool.
6. Click on the blue colour in the Color Box to select the colour to fill the rectangle.
7. Click on the area within the rectangle to fill the colour.

After completing these steps, the picture is displayed as in the figure.



Consider another example, where you want to draw a tree in the same drawing area. You need to erase the rectangle and then draw a tree. This example also illustrates the use of Pencil and Eraser tools in the Tool Box.

The steps to erase the rectangle are:

1. Click on the Eraser tool.
2. Click on the Eraser shape at the bottom of the Tool Box.
3. Drag the mouse pointer over the rectangle.

Note: The background colour that has been selected will be applied on the erased area. You can change the background colour by right-clicking another colour in the Color Box.

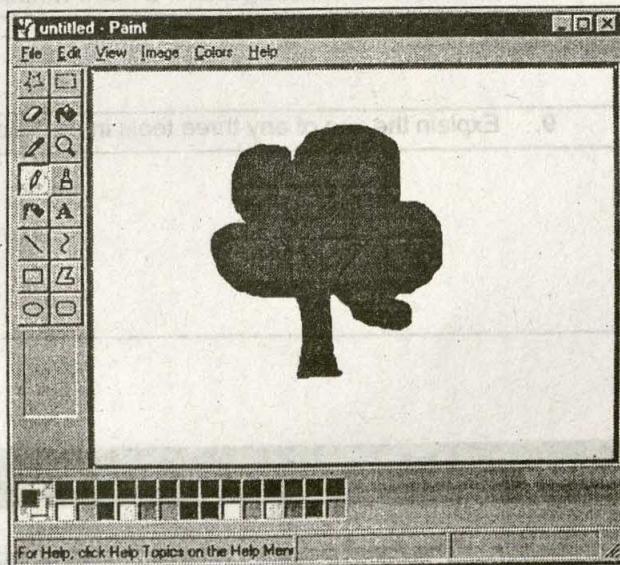
The steps to draw a tree are:

4. Click on the Pencil tool.
5. Drag the pointer in the drawing area to draw the shape of a tree trunk.
6. Drag the pointer in the drawing area to draw the outline of leaves.

7. Click on the brown colour in the Color Box to select the colour to be filled in the tree trunk.
8. Click on the Fill tool.
9. Click in the area of the tree trunk.
10. Click on the green colour in the Color Box to select the colour to be filled for the leaves.
11. Click on the Fill tool.
12. Click in the area of the leaves.

Note: If the shape getting filled has any breaks in its border, the filling colour leaks through to the rest of the drawing area. You can find and close these openings by clicking on the Zoom tool. The Zoom tool helps in magnifying a portion of the drawing.

After completing these steps, the picture is displayed as in the figure.



Classroom Exercise

Fill in the blanks

1. The Paint program is started by clicking on _____.

art tools of 2020-2021, and _____.

2. The _____ tool is used to magnify an area of the drawing.
3. The _____ tool is used to fill colour in a picture.
4. The _____ tool is used to copy a colour from one object to another object in a drawing.
5. The eraser erases a drawing by using the _____ colour.

True or False

6. The Ellipse tool enables you to draw rectangles.
7. The Brush tool enables you to spray colour on a picture.

Answer the following

8. What are the various parts of a Paint window?

9. Explain the use of any three tools in the Tool Box?

Summary

- The Paint program is used to create, edit, and view pictures.
- The Paint window has a title bar, a menu bar, a Tool Box, a drawing area, a Color Box, and a status bar.
- You can draw and edit a picture by using any of the tools in the Tool Box. To use any of the tools in the Tool Box, first click on the tool to select it.

Machine Room Session

Machine Room Exercise

1. Start the Paint program
2. Identify the various parts of the Paint window and show it to your instructor.
3. Create a picture of a cartoon and fill it with colours.

notes on moral anisotropy

and the role of anisotropy

in a two-level model

two different models of anisotropy are considered: one based on

anisotropy of the medium and the other based on anisotropy of the

7

Typing Text Using WordPad

Objectives:

At the end of this session, you will be able to:

- Identify the various features of WordPad
- Understand the basics of typing text
- Type text using WordPad
- Create a file using WordPad
- Save a file using WordPad
- Open a file
- Use the Calculator

WordPad is similar to a notebook that you use in classrooms to write essays and letters. In Windows, WordPad is a text editing application that is used for creating short documents. A text editor is an application that enables you to type and store text. You need to understand the basic features of WordPad and typing text before you create a document. A keyboard is used for typing text in the text editor.

Features of WordPad

You can use WordPad to create text documents. A file created in WordPad is known as a **document**. WordPad enables you to perform various tasks. The tasks that can be performed in WordPad are:

- Working with documents – You can create, open, and save a document.
- Editing text – You can insert or delete a character, word, or line in a document. You can also find a particular character or word and replace it with another character or word.
- Formatting text – You can change the font type, size, and style of text. You can also change the arrangement of text. Besides changing the fonts and arrangement, you can also create a bulleted list. The process of changing the font type, style, size and arrangement of text is known as **formatting**.
- Printing documents – You can print documents and also preview a document before printing.

Note: A **font** is a set of text characters that can be displayed or printed in a specific style or size. A, A, A, A, A, A, A are some examples of fonts.

Basics of Typing Text

Before you type text, you need to understand the basics of typing text. Place both your hands near the keyboard and curl your fingers. After you curl your fingers, place the tip of the small finger of your left hand on the alphabet key **A**. Similarly place the other three fingers of your left hand on the alphabet

keys **S**, **D**, and **F**. Place the small finger of your right hand on the ; key. Similarly, place the other three fingers of your right hand on the alphabet keys **L**, **K**, and **J**.

Some of the special keys on a keyboard are given in the following table.

| Special Keys | Description |
|----------------------|--|
| Ctrl | Used in combination with other keys for accessing shortcut keys. |
| Alt | Used in combination with other keys for accessing hotkeys and shortcut keys. |
| Caps Lock | Used for capitalizing letters continuously. |
| Tab | Used for entering multiple spaces between two words in a document. |
| Shift | Used for capitalizing a character. The Shift key capitalizes a character till it is pressed. When you release the Shift key, the text appears in lower case. |
| Space Bar | Used for entering a space. |
| Optional Window keys | Used for displaying the Start menu. |
| Backspace key | Used for deleting a character to the left of the cursor. |
| Enter | Used for starting a new paragraph in a document. |
| Navigation keys | Used to move the cursor in the top, down, left and right directions in a document. |

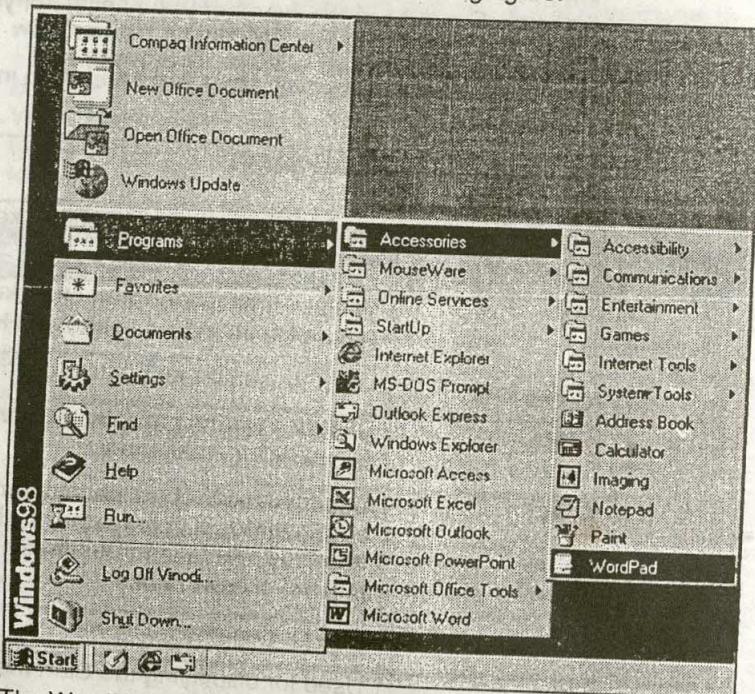
Typing Text Using WordPad

You need to open WordPad and then type text in the window.

To open WordPad, you need to perform the following steps.

1. Click on **Start** button.
2. Select **Programs**, **Accessories**, and click on **WordPad**.

The steps are displayed in the following figure.



The WordPad window appears. You can type text in the work area of WordPad window. For example, you need to type the following paragraph.

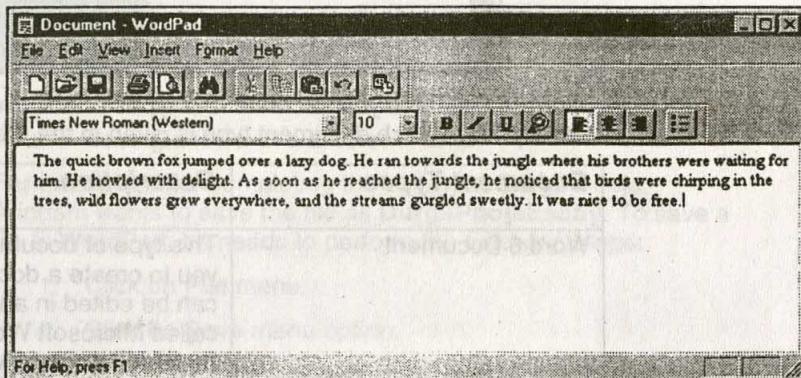
"The quick brown fox jumped over a lazy dog. He ran towards the jungle where his brothers were waiting for him. He howled with delight. As soon as he reached the jungle, he noticed that birds were chirping in the trees, wild flowers grew everywhere, and the streams gurgled sweetly. It was nice to be free."

To type text in the work area, you should locate the alphabet keys on your keyboard and start typing. While typing, you will notice the following features:

- A blinking vertical bar (|) called **cursor** is visible to you. In WordPad, the cursor indicates the current position for typing the text.
- The text that appears, while typing, is in lower case. To capitalize a letter you should press the **Shift** key and the required alphabet.

- The words automatically move to the next line. You need not press the **Enter** key to go to the next line. You should press **Enter**, if you want to start a new paragraph of text.
- The words that you type have a font and size associated with them. The usual font is **Times New Roman (Western)** and the usual size is **10** points.

After typing the text, your document should look like the following figure.



Creating a File

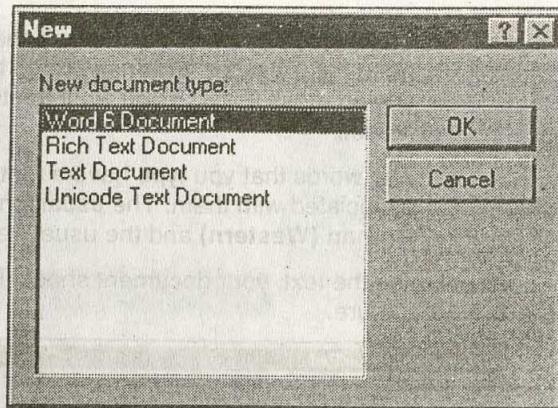
When you start WordPad, a window with the name “**Document**” is displayed. This is the usual name of a file created by WordPad. You can save this file by another name.

For example, Arindam wants to create a new file for writing an essay on the topic of Durga Pooja. To create a new file, he needs to perform the following steps:

1. Click on File menu.
2. Click on New... menu option.

A dialog box titled **New** appears as displayed in the following figure.

Click on **OK**



WordPad enables you to create four types of documents. The description of each document type is given in the table.

| Document Types | Description |
|-----------------------|--|
| Word 6 Document | This type of document enables you to create a document that can be edited in an editor called Microsoft Word. You will be learning about Microsoft Word in the later chapters. |
| Rich Text Document | This type of document enables you to create a document that can be edited in various types of editors. |
| Text Document | This type of document does not enable you to format text. |
| Unicode Text Document | This type of document enables you to type alphabets from the Chinese, Korean, Japanese, and Greek languages. |

Arindam plans to learn Microsoft Word in the future. Therefore, he wants to create a document, which is Word 6 Document type. The Word 6 Document type is automatically chosen. To create the document file he has to:

3. Click on OK.

A new document file in WordPad is created.

He can also create a new document file by using hot keys or shortcut keys.

To create a new document file using hot keys, he should press **Alt+F**, and then press **N**.

To create a new document file using shortcut keys, he should press **Ctrl+N**.

Saving a File

Any application in Windows 98 enables you to save your file in two different ways. They are as follows:

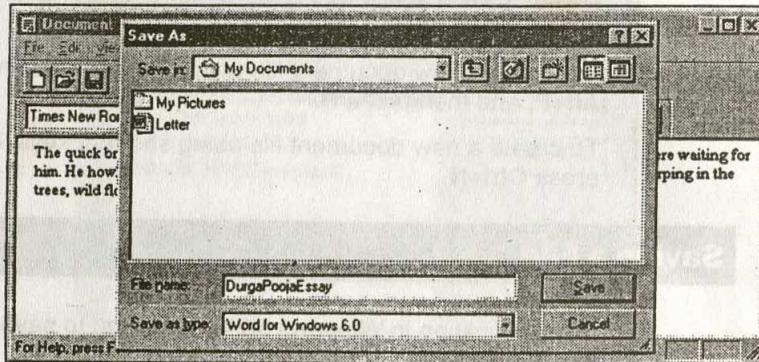
- Saving a file
- Saving a file with a different name

For example, after completing the essay on Durga Pooja, Arindam wants to save the file as **DurgaPoojaEssay**. To save a file in WordPad, he needs to perform the following steps:

1. Click on **File** menu.
2. Click on **Save** menu option.
3. Since he has not saved the file before, he should type **DurgaPoojaEssay** in the **File name:** text box.
4. Click on **Save** button.

Note: A dialog box titled **Save As** appears, if you are saving the file for the first time. This dialog box does not appear, if you are saving the file for the second time using the **Save** menu option. It only saves the changes that you have made in the file.

The following figure displays the **Save As** dialog box.



To save a file using hot keys, he should press **Alt+F**, and then press **S**. Similarly, to save a file using shortcut keys, he should press **Ctrl+S**.

Now, Arindam wants to save the same file by another name after making some changes. He also wants to retain the old essay. To solve this problem, he needs to perform the following steps:

1. Click on **File** menu.
2. Click on **Save As...** menu option.
3. Type **PoojaEssay** in the **File name:** text box.
4. Click on **Save** button.

The file that was previously saved as **DurgaPoojaEssay**, remains unchanged. To save a file by a different name using hot keys, he should press **Alt+F**, and then press **A**.

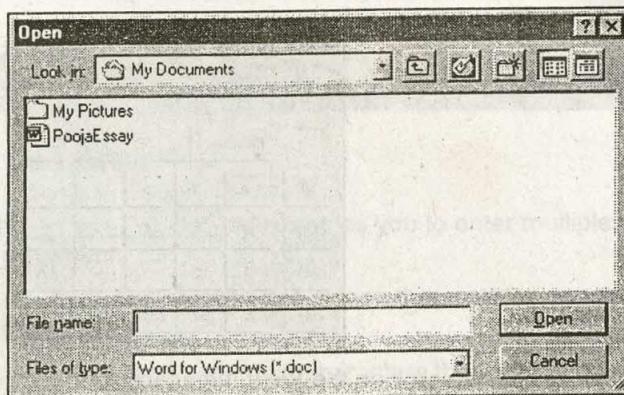
Opening a File

Arindam wants to open the document file **PoojaEssay** again. To open the document file, he needs to perform the following steps:

1. Click on **File** menu.
2. Click on **Open...** menu option.

The **Open** dialog box is displayed.

The contents are displayed as shown in the following figure.



3. Double-click on **PoojaEssay**.

The document file **PoojaEssay** is opened in Word.

Note: When you open a Word 6 Document type using WordPad, the contents of the document are displayed in Microsoft Word.

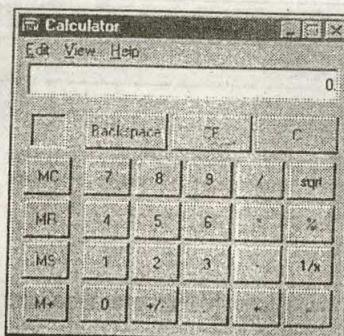
Using the Calculator

For doing an addition on two numbers you do not have to write a program or use a notebook. Windows provides a tool known as **Calculator**. The **Calculator** tool gives you two calculators to perform the calculations. They are the **Standard calculator** and the **Scientific calculator**. You can use the Standard calculator to perform simple calculations and the Scientific calculator to perform scientific and statistical calculations.

To start the Calculator, you need to perform the following steps:

1. Click on **Start** button.
2. Click on **Programs, Accessories**, and then on **Calculator**.

The Standard calculator appears as shown in the following figure.



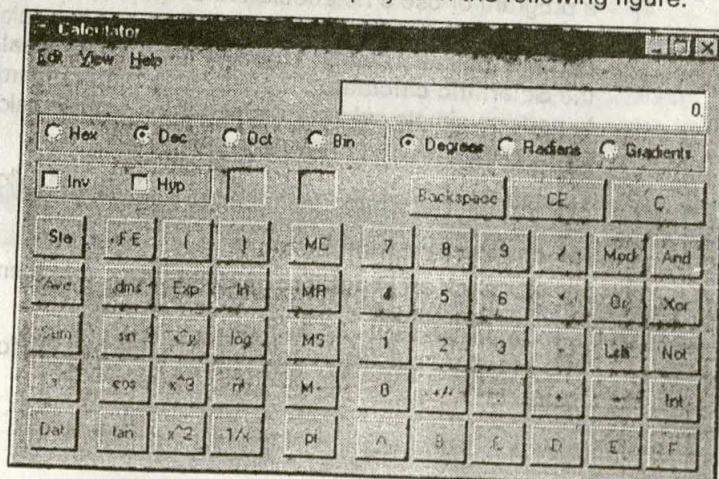
You can click on the View menu and then click on Scientific menu option to work with the Scientific calculator.

For example, you want to add two numbers, 5 and 7. To perform this addition, you need to perform the following steps:

1. Click on 5.
2. Click on +.
3. Click on 7.
4. Click on =.

The result is displayed in the calculator.

The Scientific Calculator is displayed in the following figure.



Classroom Exercise**Fill in the blanks**

1. The _____ key enables you to enter multiple spaces in a document.
2. A _____ is an application that enables you to type and store text.
3. A _____ is a set of text characters that can be displayed or printed in a specific style or size.
4. The usual name for a file in WordPad is _____.
5. The _____ indicates the current position for typing text.

True or False

6. The Shift key is used to start a new paragraph.
7. A new file in WordPad is created by pressing Ctrl+S.
8. You can create a bulleted list in WordPad.

Answer the following

9. What are the tasks that can be performed using WordPad?

10. How will you save a file with a different name?

Summary

- WordPad is a text editing application that is used for creating short documents.
- WordPad enables you to work with documents, edit text, format text, and print documents.
- A **font** is a set of text characters that can be displayed or printed in a specific style or size.
- A cursor indicates the current position for typing the text.
- While typing in WordPad, the words automatically wrap to the next line.
- In WordPad, the usual font is **Times New Roman (Western)** and the usual size is **10**.
- WordPad enables you to create four types of documents. They are **Word 6 Document**, **Rich Text Document**, **Text Document**, and **Unicode text document**.
- You can save a file with a different name by clicking on **Save As** menu option in the **File** menu.
- You can open a file by clicking on **Open** menu option in the **File** menu.
- The **Standard** Calculator enables you to perform simple calculations and the **Scientific** Calculator enables you to perform scientific and statistical calculations.

Machine Room Session

Machine Room Exercise

1. Write a paragraph about your family in a document. The following conditions need to be satisfied:
 1. All the sentences in the paragraph should begin with a capital letter.

- There should be spaces in between the words.
- All the names of family members should be in capital letters.

Note: The paragraph should contain a minimum of five sentences.

2. Do the following using a Standard Calculator:

- (i) $23 * 54 + 34$
- (ii) $(90 * 80) / 2$

8

Introduction to Microsoft Word

Objectives:

At the end of this session, you will be able to:

- Start MS-Word
- Identify the different components of a document window
- Identify the toolbars in the document window
- List the function of each toolbar
- List the menus in the menu bar

Introduction to Word Processor

A word processor is a software package that helps you to create, edit, and save documents. The file created in word processor is known as the document.

Creating a document involves typing data using keyboard, and saving it by writing it onto the hard disk. Editing a document involves correcting the spelling mistakes, if any, and inserting, deleting or moving characters, words, sentences, or paragraphs.

The following are some examples of popular word processors:

- WordPerfect
- WordStar
- Microsoft Word

In this chapter, you will learn to start the word processor Microsoft Word (MS-Word). You will also learn about the components of a document window.

MS-Word

MS-Word is the most popularly used word processor software. Microsoft Word is a windows-based application.

MS-Word enables you to do the following tasks:

- Working with documents – You can create a new document, type text into the document through the keyboard, save it on a disk, and open it later.
- Editing text – You can insert or delete a character, a word, or a line in a document. You can also find a particular character or word and replace it with another character or word. You can search for spelling mistakes and make corrections, if any.
- Formatting text – You can change the font type, size, and style of the text. You can also change the arrangement of text. You can also reduce or increase the left, right, top, and bottom margins. Besides changing the fonts and the arrangement, you can also create a bulleted list. The process of changing the font

The **type, style, size, and arrangement of text** is known as **formatting**.

- Print documents – You can print documents and also preview a document before printing.

Starting MS-Word

To start MS-Word, you need to perform the following steps.

1. Click on **Start** menu.
2. Select **Programs** option from the Start menu.
3. Click on **Microsoft Word** option.

Note: Alternatively, you can double-click the Microsoft Word shortcut on the desktop.

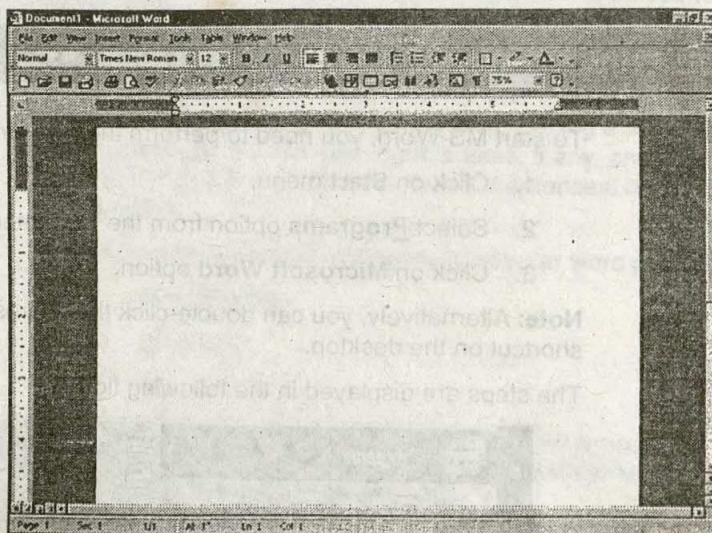
The steps are displayed in the following figure.



This invokes MS-Word and a blank document window appears on the screen. A window is a rectangular area on your desktop that enables you to view an application or a document.

This window is called the Microsoft Word document window. A new document window is displayed each time you start MS-Word.

A blank document window is displayed in the following figure.

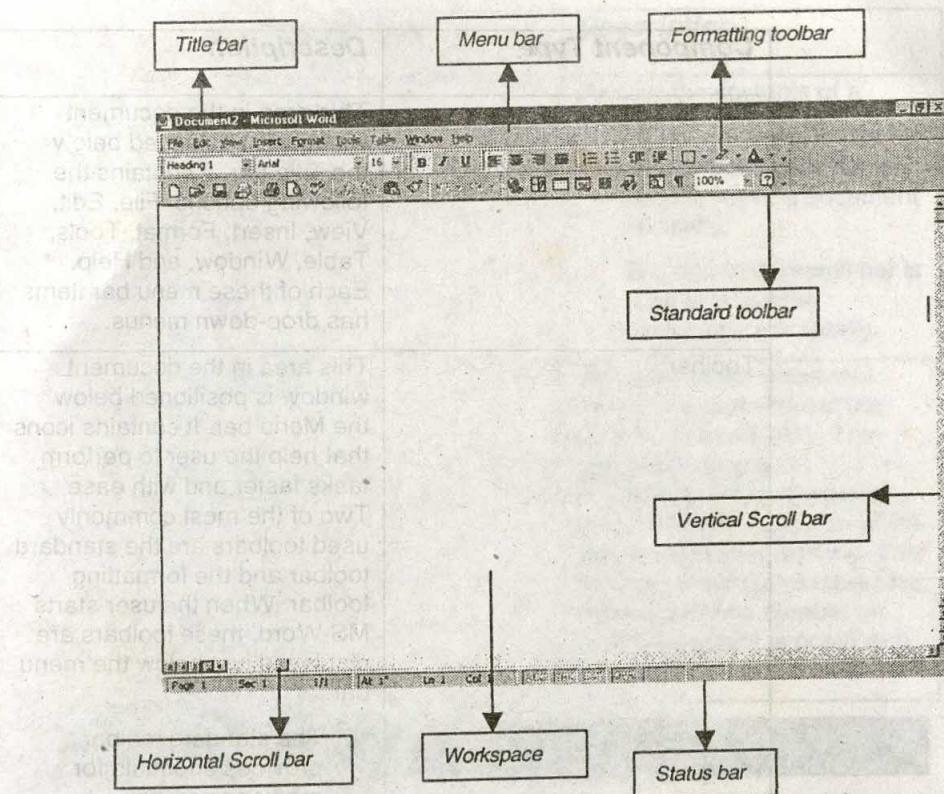


The Document Window

The MS-Word document window has the following basic components:

- Workspace
- Title bar
- Menu bar
- Toolbar
- Ruler bar
- Scroll bar
- Status bar

A picture of a document window and its components is displayed in the following figure.



The description of each component in the document window is given in the table.

| Component Type | Description |
|----------------|---|
| Workspace | The area in the document window where you can type the text of the document. |
| Title bar | The area in the document window that displays the name of the program, the name of the currently active Word document, the Control menu icon, the Maximize button, the Minimize button and the Close buttons. |

| Component Type | Description |
|----------------|---|
| Menu bar | <p>This area in the document window is positioned below the Title bar. It contains the following options: File, Edit, View, Insert, Format, Tools, Table, Window, and Help. Each of these menu bar items has drop-down menus.</p> |
| Toolbar | <p>This area in the document window is positioned below the Menu bar. It contains icons that help the user to perform tasks faster and with ease. Two of the most commonly used toolbars are the standard toolbar and the formatting toolbar. When the user starts MS-Word, these toolbars are displayed just below the menu bar.</p> <ul style="list-style-type: none"> ▪ The standard toolbar provides shortcuts for menu commands. ▪ The formatting toolbar contains tools related to formatting of the text in the document. |
| Ruler bar | <p>This area in the document window is positioned below the Toolbar. The Ruler bar allows the user to format the vertical positioning of text in a document.</p> |
| Scroll bar | <p>The Word document window consists of two scroll bars: vertical scroll bar and horizontal scroll bar.</p> <p>The scroll bar as the name suggests helps to move</p> |

| Component Type | Description |
|-----------------------|---|
| | <p>through the contents of a document.</p> <ul style="list-style-type: none"> ▪ The vertical scroll bar is used to move a document vertically. ▪ The horizontal scroll bar is used to move the document horizontally. |
| Status bar | <p>This area of the document window is positioned at the bottom of the window. The Status bar displays information about the active document or the task on which you are currently working. This includes the page number, the column and line number on which the cursor is positioned and so on.</p> |

Menus in Word

Each menu in a menu bar has a set of commands called menu options. The menu options in a menu have a command name, a hot key, and an optional shortcut key.

Note: The hot keys are indicated by an underline below an alphabet.

These menu options can also be activated by pressing together the Alt key and the underlined character in the option name.

For example, if you want to select some menu option on the File menu bar, you can press Alt and F keys together to invoke the File menu.

The document window has nine menus in its menu bar.

The nine menus are:

- File
- Edit

- View
- Insert
- Format
- Tools
- Table
- Window
- Help

Each of these menu bar items has drop-down menus. A drop-down menu is one that consists of a list of options, which drops down when you click on the menu bar item.

Classroom Exercise

Fill in the blanks

1. _____, _____, and _____ are three examples of popular word processors.
2. _____ is the area in the document window where you can type the text of the document.

True or False

3. The area in the document window that is positioned below the Toolbar is the Status bar.
4. The formatting toolbar provides shortcuts for menu commands.

Answer the following

5. List the steps you need to perform to open MS-Word.

Summary

- A word processor is a software package that helps you to create, edit, and save documents.
- The file created using a word processor is known as a document.
- The file created using Microsoft Word is known as a Word document.
- Microsoft Word is a Windows-based application.
- A new document window is displayed each time you start MS-Word.
- The MS-Word document window has the following basic components: Workspace, Title bar, Menu bar, Toolbar, Ruler bar, Status bar, and Scroll bar.
- Each menu in a menu bar has a set of commands called menu options.
- The document window has nine menus in its menu bar.

A world-class seat is a坐位 that provides the best possible seat of choice for the user.

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comfortable user options.

3. The Modern World

3.1. The Modern World

3.2. The Modern World

3.3. The Modern World

3.4. The Modern World

3.5. The Modern World

3.6. The Modern World

3.7. The Modern World

3.8. The Modern World

3.9. The Modern World

3.10. The Modern World

3.11. The Modern World

3.12. The Modern World

of basic Microsoft Word features and how to use them. The following topics will be covered in this session:

9

Getting Started with MS-Word

Objectives:

At the end of this session, you will be able to:

- Create a document
- Type text in document window
- Save a document
- Close a document
- Open a document
- Print a document

As mentioned in the previous chapter, MS-Word is used to create, edit, and save documents. Just like any other window, the document window contains components, such as a title bar, menu bar, toolbar, and status bar.

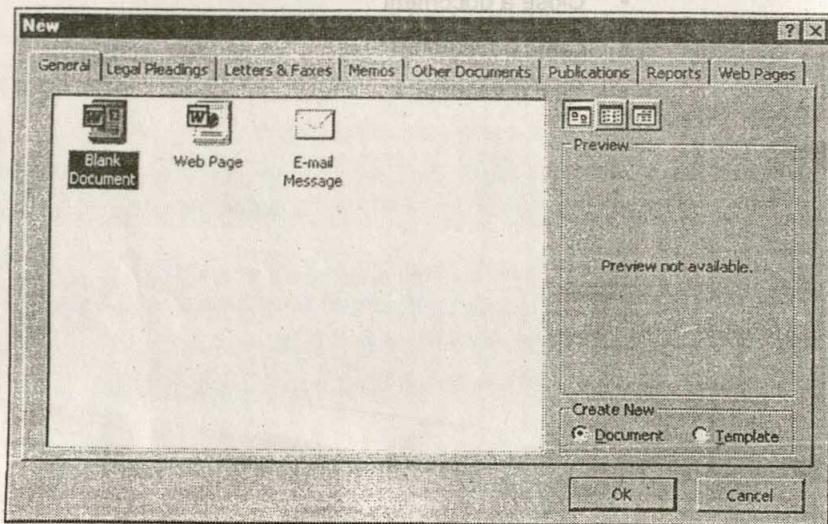
In this chapter, you will learn to use the File menu to create, save, close, open, and print a word document.

Creating a Document

To create a new document in MS-Word, you need to perform the following steps.

1. Click on File menu.
2. Click on New... menu option.

The dialog box titled New is displayed, as shown in the following figure.



3. Select the **Blank Document** icon.
4. Click on the **Document** option in the **Create New** section to create a document.
5. Click on **OK**.

A new document is displayed on the screen.

Note: You can also press the **Ctrl + N** keys on the keyboard to create a new document. These keys are called **shortcut keys**. Shortcut keys are combination of one or more keys you press on the keyboard to complete a task. The keys help you to do the tasks you perform frequently by using **shortcuts**.

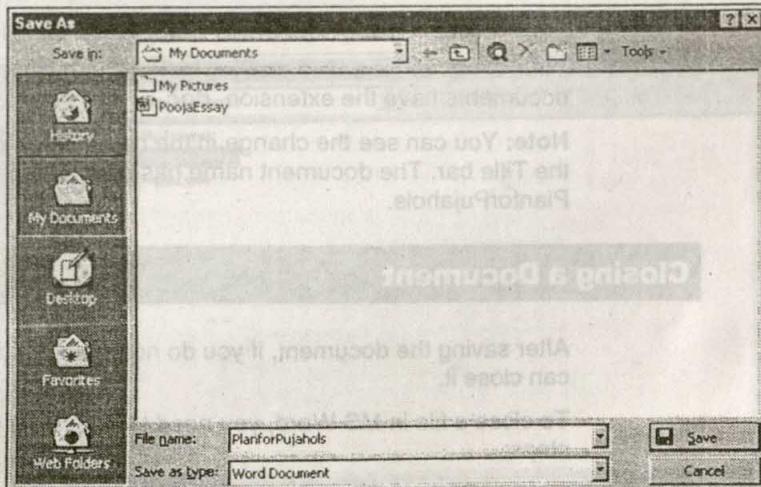
You will notice the blinking cursor on the **Workspace** of the document window. You can use the keyboard to type text in the **Workspace**.

Saving a Document

When you type a document, it gets stored in the internal memory of the machine. In order to preserve the document for future use, it needs to be saved on the disk.

To save a file in MS-Word, you need to perform the following steps:

1. Click on **File** menu.
2. Click on **Save** menu option. The **Save As** dialog box is displayed, as shown in the figure below.



Note: The **Save As** dialog box appears only if you are saving the file for the first time. If you have already saved the document once, clicking on the **Save** menu option will automatically save the latest changes that you have made to the document.

3. Type a name for the file in the **File name:** text box.

4. Click on **Save** button to save the document.

Note: You can also press the shortcut keys, **Ctrl + S** to save the document.

You should always give descriptive and meaningful names to your files so that it is easy to identify whenever you need it.

For example, your teacher asks you to write a few lines on how you plan to spend your Puja holidays. After completing the document, you can save the file with a name, *try.doc*. However, this file name does not give you any clue about what the file contains. Therefore, you must give it a meaningful name, such as *PlanforPujahols.doc*. In Windows, a file name, including its extension, can have a maximum of 255 characters. To save the Word document as *PlanforPujahols*, you need to perform the following steps:

1. Click on **File** menu.
2. Click on **Save** menu option. The **Save As** dialog box is displayed.
3. Type **PlanforPujahols** in the **File name:** text box.
4. Click on **Save** button.

Your document is saved as *PlanforPujahols.doc*. All word documents have the extension **.doc**.

Note: You can see the change in the name of the document in the Title bar. The document name has changed to *PlanforPujahols*.

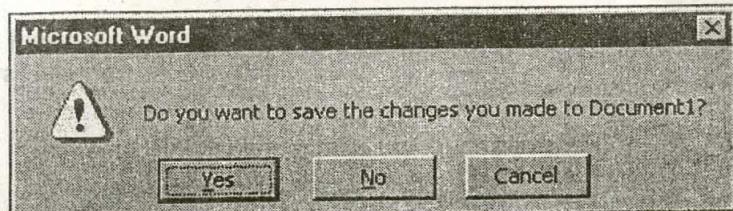
Closing a Document

After saving the document, if you do not need the document you can close it.

To close a file in MS-Word, you need to perform the following steps:

1. Click on **File** menu.
2. Click on **Close** menu option.

Note: If you try to close the file without saving it, a warning box is displayed, as shown in the following figure.



3. Click on Yes to save and close the document.

Note: You can also click on the Close button present at the right of the title bar to close the document.

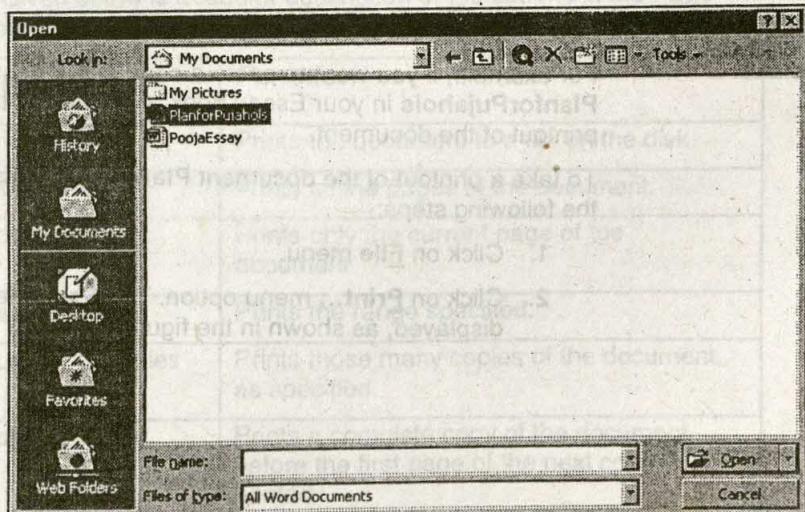
Opening a Document

You can use the Open menu option in Word to open an existing document.

To open the document file, you need to perform the following steps:

1. Click on File menu.
2. Click on Open... menu option.

The Open dialog box is displayed, as shown in the figure below.



3. Select the appropriate drive and folder where the file is located from the **Look in:** drop-down list.

4. Type the name of the file you want to open in the **File name**: text box or select the file from the list.
5. Click on **Open**.

For example, if you want to read the document file **PlanforPujahols**, you need to first open it.

To open the document file **PlanforPujahols**, you need to perform the following steps:

1. Click on **File** menu.
2. Click on **Open...** menu option. The **Open** dialog box is displayed.
3. Select the file **PlanforPujahols** and click on the **Open** button. Alternatively, you can also Double-click on **PlanforPujahols** to open that document.

The document file **PlanforPujahols** is opened in Word.

Note: You can also press the shortcut keys, **Ctrl + O** to open a document.

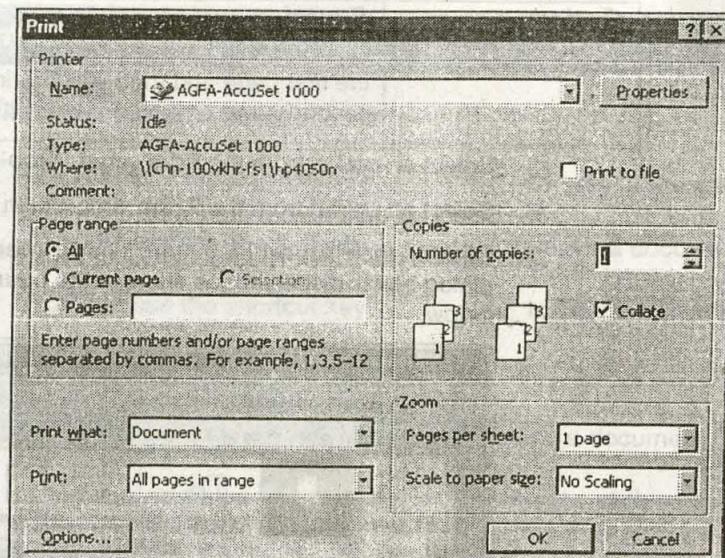
Printing a Document

You can use the **Print** menu option in Word to print a document.

For example, if you want to paste a copy of the document **PlanforPujahols** in your **Essay** book, you need to take a printout of the document.

To take a printout of the document **PlanforPujahols**, perform the following steps:

1. Click on **File** menu.
2. Click on **Print...** menu option. The **Print** dialog box is displayed, as shown in the figure below.



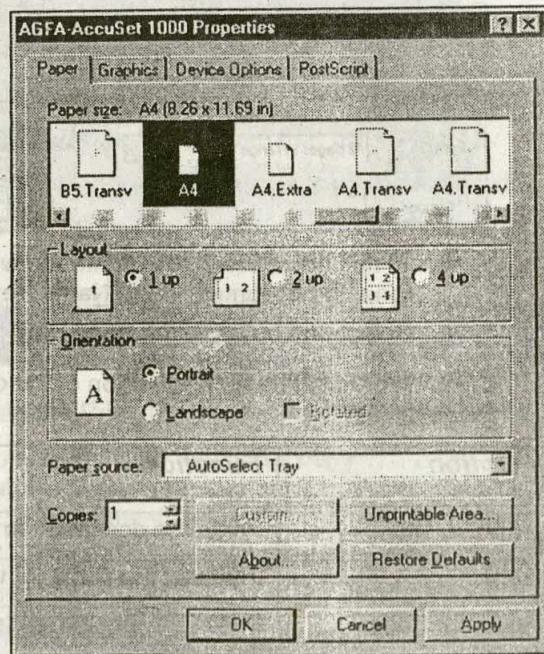
3. Select the name of the printer on which you want to print the document in the Name: text box.
4. Select one option in the **Page range** section.

Given below is a tabular description of the options in the **Page range** section

| Option | Function |
|------------------|---|
| Print to file | Prints the document to a file on the disk. |
| All | Prints all the pages of the document. |
| Current Page | Prints only the current page of the document. |
| Pages | Prints the range specified. |
| Number of copies | Prints those many copies of the document, as specified. |
| Collate | Prints a complete copy of the document before the first page of the next copy is printed. For example, if your document has 16 pages and if you type 4 in the Number of copies option, the printer first prints four copies of |

| Option | Function |
|--------|--|
| | the first page and then starts printing the second page. |

5. Select an option from the **Print what:** drop-down list.
6. Select an option from the **Print:** drop-down list.
7. Click on the **Properties** button. The **Printer Properties** dialog box is displayed, as shown in the figure given below.



8. In the **Paper** tab, select the **A4** option in the **Paper size:** section.
9. Select the **Portrait** option in the **Orientation** section.
10. Click on **OK** to close the Properties dialog box.

A copy of the file is sent to the printer and the printer prints it.

Note: You can also press the shortcut keys, **Ctrl + P** to print a document.

Classroom Exercise

Fill in the blanks

1. You can use the shortcut key + to open a document.
2. You can use the shortcut key + to save a document.
3. You can use the shortcut key + to print a document.

True or False

4. You can use the shortcut key Ctrl + C to close a document.
5. The Save As dialog box appears, every time you click on the Save menu option.

Answer the following

6. List the steps you need to perform to save a Word document.

7. List the steps you need to perform to print a Word document.

Summary

- You can use the New menu option to create a new Word document.
- You can use the Save menu option to save a document.
- You can use the Close menu option to close a document.
- You can use the Open menu option to open an existing document.
- You can use the Print menu option to print a document.

Machine Room Session

Machine Room Exercise

1. Start the Word program.
2. Create a new Word document and type the following text.

Personal computers or PCs are the popular form of computers. PCs are also called microcomputers. These computers are used by individuals and organizations. They are small in size. However, they can perform difficult tasks. They can be used for a wide range of functions like maintaining the accounts of a small house or a big organization.

Supercomputers are the largest and fastest computers. They are also the costliest computers. They are used in fields like science and defence. These computers are used for designing and launching missiles. There are very few supercomputers throughout the world. India owns a series of supercomputers called PARAM developed by C-DAC.
3. Save the document as Types of Computers.
4. Take a printout of the document that you have typed.

10

Formatting Text in MS-Word

Objectives:

At the end of this session, you will be able to:

- Change the font size
- Change the font style
- Change the font colour
- Use the Format menu option to change the font characteristics
- Use the Format Painter button to format a Word document
- Use bullets and numbering

In the previous chapter, you learned to use the File menu to create, save, close, open, and print a Word document. In this chapter, you will learn to use the Font dialog box and the formatting toolbar to format text in a Word document.

Formatting Text

Formatting a document includes assigning fonts, changing the font type, size, and colour of text, changing the text to bold, underlining the text if necessary, adjusting the line and paragraph spacing, and setting the margins.

The word "font" refers to the manner or style in which text is displayed in the document.

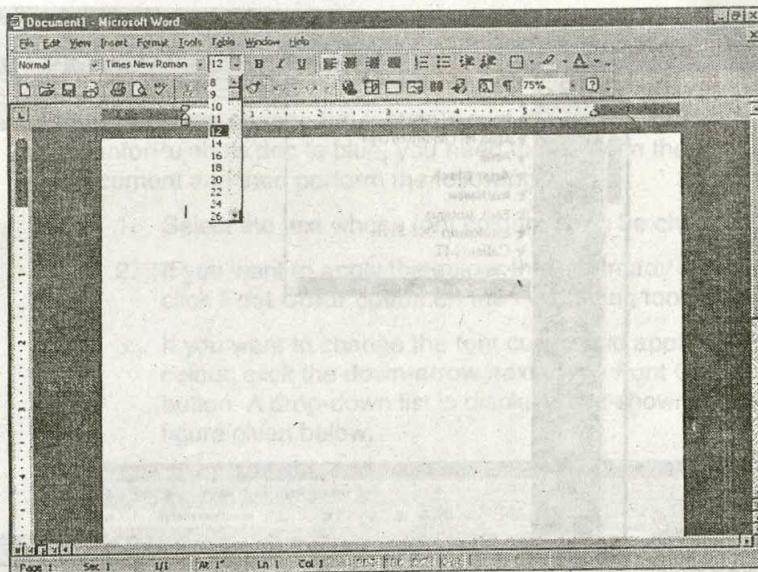
Word offers many ways to change fonts and font sizes. However, the fastest way to format text in a document is by using the formatting toolbar.

Changing the Font Size

Font size is the size of the text in a Word document. Font size is measured in points.

For example, if the font size in your PlanforPujahols.doc is 10 and if you want to change it to 12, you need to first open the document and then you must perform the following steps:

1. Select the text whose font size has to be changed.
2. Click on the down-arrow of the **Font Size** list box in the formatting toolbar. A drop-down list of available fonts sizes is displayed as shown in figure below. The list contains the 16 standard font sizes.



3. Select the font size **12** from the list.

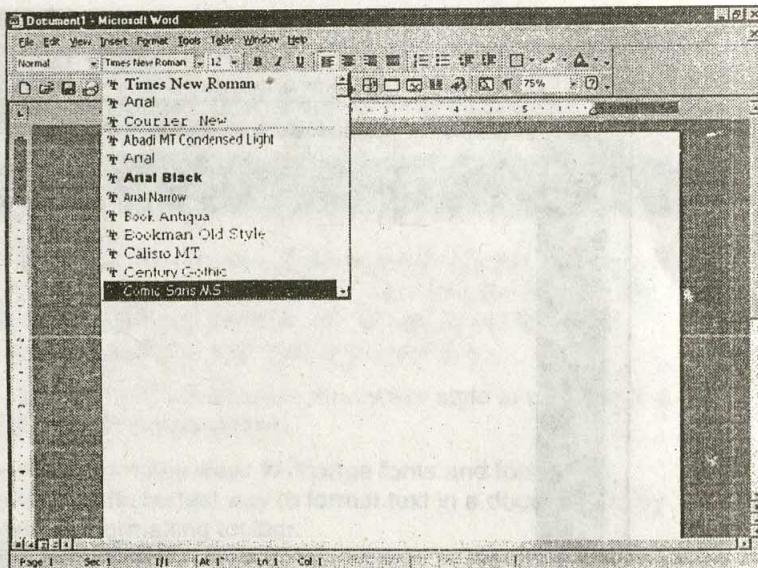
The font size has changed to 12.

Changing the Font Type

Font type is the name of the font of the text in a Word document. For example, Arial, Times New Roman, and Comic Sans MS are some examples of font type.

For example, if you want to change the font of the text in your PlanforPujahols.doc to Comic Sans MS, you need to first open the document and then perform the following steps:

1. Select the text whose font type has to be changed.
2. Click on the down-arrow of the **Font** list box in the formatting toolbar. A drop-down list of available font names is displayed as shown in figure below.



3. Select the font **Comic Sans MS** from the list.

The font has changed to Comic Sans MS.

You can also change the font styles to bold, italics, and underline from the formatting toolbar by clicking on the respective options.

Given below is a tabular description of the options used to change Font style.

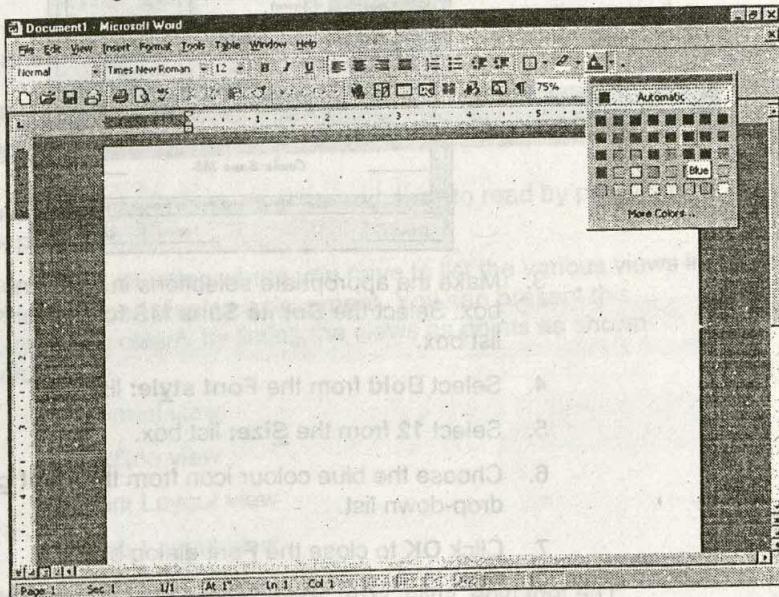
| Button Name | Buttons, | Sample Output |
|-------------|----------|----------------------------|
| Bold | B | Changing font style |
| Italic | <i>I</i> | <i>Changing font style</i> |
| Underline | <u>U</u> | <u>Changing font style</u> |

Note: You can use all the three options at the same time.

Changing Font Colour

If you want to change the font colour of the text in your PlanforPujahols.doc to blue, you need to first open the document and then perform the following steps:

1. Select the text whose font colour has to be changed.
2. If you want to apply the colour that is already selected, click **Font Color** button on the Formatting toolbar.
3. If you want to change the font colour and apply a new colour, click the down-arrow next to the Font Color button. A drop-down list is displayed as shown in the figure given below.



4. Select the blue colour.

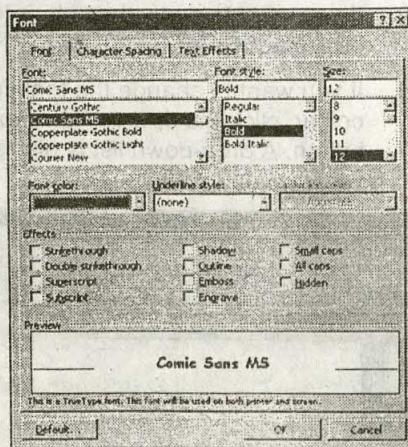
The font colour has changed to blue.

Formatting Using the Font Dialog Box

You can also use the Format menu option in Word to format a document.

For example, if you want to use the Font dialog box to change the font type, style, size, and colour of the text in your PlanforPujahols.doc to Comic Sans MS, bold, 12 points, and blue respectively, you must perform the following steps:

1. Click on **Format** menu.
2. Click on **Font...** menu option. The dialog box titled **Font** is displayed, as shown in the following figure.



3. Make the appropriate selections in the Font dialog box. Select the **Comic Sans MS** font from the **Font:** list box.
4. Select **Bold** from the **Font style:** list box.
5. Select **12** from the **Size:** list box.
6. Choose the blue colour icon from the **Font colour:** drop-down list.
7. Click **OK** to close the Font dialog box.

The font type, style, size, and colour of the text have changed to Comic Sans MS, bold, 12 points, and blue colour.

Formatting Using the Format Painter

The Format Painter button in the Standard toolbar is used to format an entire document quickly and easily. The format painter copies the format from the selected text to the text you want to format.

Suppose, you have formatted a line as Comic Sans MS, bold, italic, and underline. If you want to apply the same format to the rest of the document, rather than formatting each paragraph of the document separately, the Format Painter can be used to format the entire document.

To apply the same format to the rest of the document, you must perform the following steps:

1. Select the text whose format is to be copied.
2. Click on Format Painter button  in the standard toolbar. The mouse pointer changes to a paintbrush.
3. Select the text to be formatted.

The text to be formatted automatically changes to the copied format.

Using Bullets and Numbering

Information can be made clear and easy to read by presenting it as points.

Consider a situation where you have to list the various views in which you can display a document. You can present this information clearly by listing the views as points as shown below.

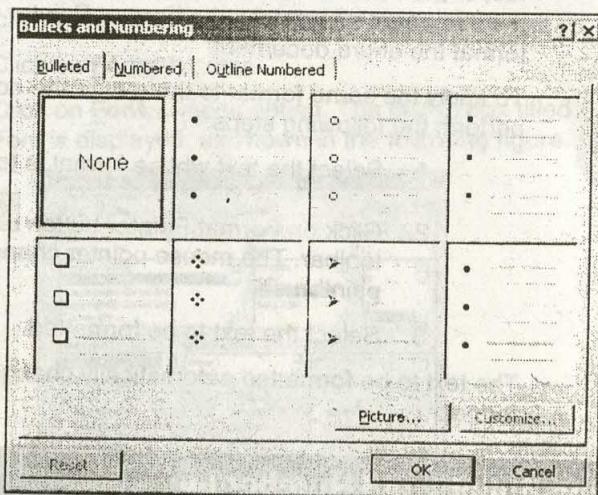
- Normal view
- Outline view
- Print Layout view
- Web Layout view

In Word, you can present information in points by using bullets and numbering.

You can add bullets or numbers by performing the following steps:

1. Select an existing list or type a new list and select it.
2. Click on **Format** menu.

3. Click on **Bullets and Numbering** menu option. The Bullets and Numbering dialog box is displayed, as shown in the following figure.



4. From the list of bullet styles, select a style of your choice.
5. Click on **OK** button.

Classroom Exercise

Fill in the blanks

1. Font size is measured in _____.
2. The Font Size drop-down list contains _____ standard font sizes.
3. The _____ option enables you to present information in the form of points.

Answer the following

4. List the steps you need to perform to change the font size using the Format menu option.

5. List the steps you need to perform to change the font colour using the formatting tool bar.

6. List the steps you need to perform to format a document using the Format Painter.

Summary

- MS Word offers many ways to change fonts and font sizes.
- Font size is the size of the text in the Word document. Font size is measured in points.
- Font type is the name of the font of the text in the Word document.
- The Font option in Format menu is used to change the font characteristics of text in a document.
- The options in the formatting toolbar are also used to change the font characteristics of the text in the Word document.

- The Format Painter button in the standard toolbar is used to format an entire document quickly and easily.
- Word enables you to present information in the form of a list or points by using the Bullets and Numbering option.

Machine Room Session

Machine Room Exercise

1. Create a new Word document and type the following text.

Parts of a Computer

A complete computer unit consists of the following parts: monitor, keyboard, system unit, mouse, and printer.

Monitor:

The computer has a screen to display output. This computer screen is called Visual Display Unit (VDU) or monitor. The monitor of the computer resembles a television screen.

Keyboard:

The keyboard is an input device. You can use the keyboard to input data into the computer.

Mouse:

Mouse is an input device. It is used to point and select an option on the VDU. If you move the mouse on a flat surface, you will notice a corresponding movement of an arrow or a pointer on the screen.

2. Change the font of the text to Tahoma.
3. Change the font size of the main heading, Parts of a Computer, to 18 points.
4. Change the font size of the sub-heading, Monitor, Keyboard, and Mouse to 14 points.
5. Change the font style of the last paragraph to italics.

11

Introduction to Internet

Objectives:

At the end of this session, you will be able to:

- Define the term Internet
- Understand the history of Internet
- List the uses of Internet
- Understand the World Wide Web
- List the advantages of the Web
- List the features of Internet

What is Internet?

Internet is a network of computer systems that are connected to each other. It is a global network that connects millions of computers and other devices. The Internet is a collection of interconnected networks that are linked together by a common set of rules and protocols. It is a public network that anyone can access with the right equipment and knowledge. The Internet is used for a variety of purposes, including communication, information retrieval, e-commerce, and entertainment. It is a valuable resource for education, research, and business. The Internet has revolutionized the way we live and work, making it easier to communicate with people around the world and access information from anywhere.

Communication is natural to human beings. Communication is the transfer of information from one person or place to another person or place. In a communication, you have a sender of information, a receiver of information, and the medium through which the communication takes place. You are already familiar with telephones, televisions, and transistors, which are used for communication. The form of communication that has become popular these days is the communication between two computers. In this form of communication, the sender and receiver of information are people working with computers and the medium through which the information is transferred may be cables, satellite links, or electromagnetic waves. This has led to the creation of computer networks. A **computer network** contains a group of computers that can communicate with each other. The computer networks enable you to share resources and information. The computer that sends information is called a **server** and the computer that receives information is called a **client**.

Internet

Over the years networks have grown in size and multiple networks have been interconnected. Starting in the sixties, this interconnection of networks has grown to what is today called the Internet. **Internet** is a network of networks where more than a million computers are connected to each other.

History of Internet

In 1969, the DoD (Department of Defence) of the United States started a network called the ARPAnet (Advanced Research Projects Administration network). ARPAnet began with one computer in California and three in Utah. It was an experiment carried out to see whether networking could be reliable. This network was set up by the military to ensure that communications did not fail in the event of war. The DoD wanted to maintain contacts with some universities doing research for the military. The DoD also wanted these universities to share software and hardware resources that they could not afford. Later, the military allowed other universities to join the network. Students at these universities caught on to the

network and developed much of the software that gives it its present shape.

ARPAnet quickly grew to cover the entire American continent and became a big success. Every university in the country wanted to become a part of the ARPAnet. So the network was broken into two parts - MILNET for managing military sites, and the new, smaller ARPAnet for managing the non-military sites. Around 1980s, a network called the NSFNET - National Science Foundation Network was created.

The National Science Foundation Network allowed universities and research agencies to connect with its super computers. Using modern technology, it permitted any computer in the system to connect with any other computer in the network. By the 1990s many networks connected to the NSFNET. This growing network was the birth of the Internet.

Uses of Internet

The Internet is a vast source of information available to people across the world. Generally, people do not require vast volumes of information in their daily work. They require small bits of information for completing their tasks. The users of Internet are:

- Students from schools, colleges, and universities
- Teachers and Professors
- Research agencies and laboratories
- Company Executives and Employees
- Entertainment industry
- Leading newspapers and magazines
- Government agencies and heads of states

The use of Internet is as follows:

- Internet offers the latest information from the fields of Sports, Finance, Films, Food, Music, Law, Education, Literature, Science, Computers, and Medicine.
- Internet offers exchange of views on any topic through newsgroups and discussion forums.
- Internet enables you to virtually visit any place in the world without moving from the comfort of your home.

- Internet enables you to talk with other computer users or famous people across the world.
- Internet enables you to play games with other users.
- Internet enables you to send messages to other people around the world by using e-mail.
- Internet offers access to information present in the virtual libraries.

World Wide Web

The WWW (World Wide Web) was developed to provide easy access to information and to enable easy movement on the Internet. WWW is a series of servers that store information in document files spread across the Internet. These files contain marked items called **hyperlinks**. When any hyperlink is selected, the related topic is shown to the user, which may be present in a document file on a different server.

The document files present on the Web server are known as **Web pages**. A Web page may contain text, pictures, audio, and video clips. A collection of Web pages is stored at a location known as the **Web site**.

Advantages of World Wide Web

The advantages of WWW are as follows:

- Non-linear – A Web page is not linear. A user can click on any hyperlink present on the Web page and jump to a related Web page that may be present on a different Web site.
- Graphical – A Web page can contain text, pictures, audio, and video clips which makes it interesting to the user.
- Interactive – A user can interact with a Web page by filling a form, by running a program, or select options from a Web page.

Features of Internet

The Internet has grown enormously in the last ten years and every year sees new and easier ways of accessing the information on it. However, there are set of features that are considered essential on the Internet.

These features are:

- e-mail
- Search engines
- Chat
- FTP

e-mail

e-mail or electronic mail is the most widely used feature of the Internet. Using e-mail, a user can send and receive mails through computers, to and from any Internet user. e-mail uses the networks to send text, messages, audio, and video files. You can send a message to one user or a group of users. Users can read, print, forward, reply, or delete a message. e-mail is popular because it does not suffer transportation delays which are common with postal mail. Moreover, you are not required to pay any money for postage.

Search Engines

The vast amount of information present on the Internet makes it difficult for any user to locate the required information. To overcome this problem, there are several Web sites on the Internet known as **search engines** that enable a user to easily locate the required information.

A search engine enables you to find information by typing a keyword or a combination of keywords. For example, if you want information on *Rabindranath Tagore*, you can type the keyword *Tagore* on the Web page provided by the search engine. The search engine will search through the Web servers and display the titles of Web pages that contain information on Rabindranath Tagore. Some popular search engines on the Internet are Yahoo, AltaVista, and Google.

Chat

It is possible to chat with other computer users through Internet. Chatting is an online conversation with other users on the Internet. It is similar to a telephone conversation, except that users type in what they have to say, rather than speaking it. To chat, you need to connect to a chat server using a login name and a password. The login name is used to identify a user. Once you connect to a chat server, you can select a room and join the room. The chat server displays two windows. In one window, you can type your messages, and in the other window you can see what the other people are saying. Several Web sites such as Yahoo and Rediff offer chat services.

FTP

FTP stands for File Transfer Protocol. The FTP program is used for transferring data files between computers on the Internet. FTP can send and receive data to and from any distant computer on the Internet to the user's computer. The FTP program provides commands that enable the users to manage files. FTP enables a user to download files from computers connected to the Internet. **Downloading** is a process where a file is copied from a distant computer to a user's computer across the Internet.

Classroom Exercise

Fill in the blanks

1. The first network in the world was known as _____.
2. _____ is a series of servers that store information in document files.
3. A _____ is a document file present on the Web server.
4. A _____ is a marked item, which is used to jump to another document.
5. A _____ enables you to talk with other users connected to the Internet.

True or False

6. The World Wide Web is a part of Internet.
7. A Web page can contain only text and pictures.
8. Hyperlink allows a user to freely select any link without following any order of selection.
9. Search engines create a lot of confusion while searching for information.
10. FTP enables a user to transfer data to and from the user's computer to any computer on the Internet.

Answer the following

11. What are the advantages of World Wide Web?

12. Explain any two features of the Internet?

Summary

- A **computer network** contains a group of computers that can communicate with each other.
- The computer that sends information is called a **server** and the computer that receives information is called a **client**.
- **Internet** is a network of networks containing computers of different types and spread across several countries.
- WWW is a series of servers that stores information in document files spread across the Internet.
- The document files present on a Web server are known as **Web pages**. Using a hyperlink, you can connect to documents present on other Web servers.
- A collection of Web pages stored at a location known as a **Web site**.
- The e-mail feature of Internet enables a user to send and receive messages, to and from any Internet user across the world.
- Search engines enable a user to search information quickly.
- Chatting is a conversation with other users on the Internet in which the users type in what they have to say, rather than speaking it.
- The **FTP** program is used for transferring files between computers on the Internet.

12

Using a Browser

Objectives:

At the end of this session, you will be able to:

- Understand the terms used in WWW
- Use a Web browser

What is a Web browser? A Web browser is a program that enables you to read the content of Web pages.

A Web browser is a program that enables you to view Web pages available on the WWW. Some common browsers are Microsoft Internet Explorer, Mozilla Firefox, and Google Chrome. These programs display the content of Web pages in a graphical user interface. You can use a Web browser to search for information on the Internet. To use a Web browser, you need to type the address of the website you want to visit. This address is called a Uniform Resource Locator (URL).

What do you do when you have to send a file to your friend? You upload the file to a cloud storage service like Google Drive or OneDrive. You can also attach the file to an email and send it to your friend. This address will be given to you to attach it to the URL. A URL consists of four parts. They are:

- Protocol name – A protocol is defined as a set of rules that enables computers to exchange information.

In the previous chapter, you learned about WWW and its advantages. You also learned about the features of Internet. In this chapter, you will learn about the different terms used in World Wide Web. You will also learn about URL and how to use a Web browser.

Terms used in WWW

Some of the common terms used with respect to WWW are:

- **Browser** – A program used on the client computer that enables a user to display and interact with a Web page.
- **Web Server** – A program that is used to send information requested by the Web browsers. A Web site is created on a Web server. It is also used to refer to the computer that runs the server program.
- **Home Page** – This is the first Web page that is displayed to a user, when he or she connects to a Web site.
- **HTML (HyperText Markup Language)** – A language that is used for creating Web pages.

Using a Web Browser

A Web browser is a program that enables you to view the Web pages available on the WWW. Some common examples of Web browsers are Opera, Netscape Navigator, Internet Explorer and Hot Java. These browsers are capable of displaying Web pages containing text and pictures, playing sound and video files, and linking to other Web pages.

Internet Explorer

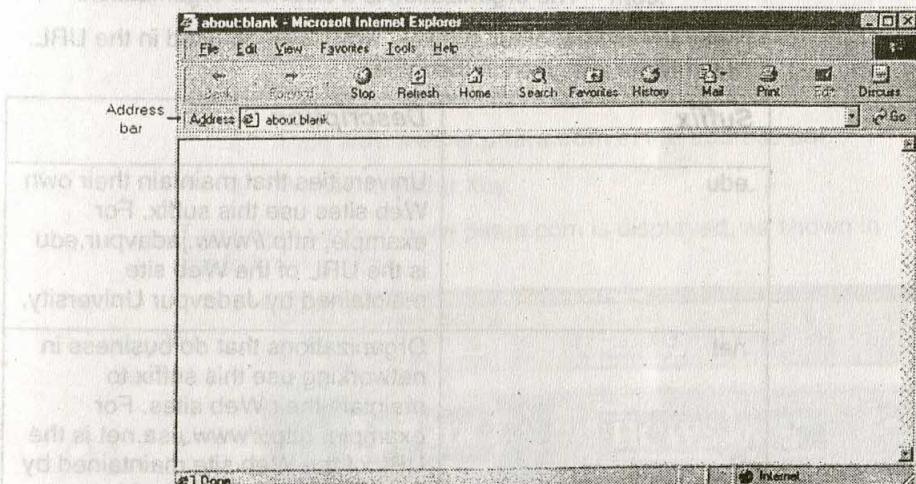
The Microsoft Internet Explorer is a Web browser developed by Microsoft. The Internet Explorer comes free when you buy Windows 98. You must have seen its icon on the desktop. The information got through Internet Explorer can be included in your documents or can be saved as files.

To start Internet Explorer, you need to double-click on Internet Explorer icon () present on the desktop. You can also start Internet Explorer by performing the following steps:

1. Click on **Start** button.
2. Click on **Programs** menu option.
3. Click on **Internet Explorer** menu option.

The Quick Launch toolbar in Windows 98 also enables you to start Internet Explorer.

The Internet Explorer window appears as shown in the following figure.



The Internet Explorer window has a title bar, a menu bar, a toolbar, and a status bar. It also has an address bar, where you need to type the address of the Web site that you want to visit.

What do you do when you have to send a letter to your friend? You write the name, the name of the building, the name of the street, the name of the city, and the pin code. Similarly, when you want to visit a Web site, you need to type its address in the address bar.

The address of a Web site is known as **URL (Uniform Resource Locator)**. A URL consists of four parts. They are:

- Protocol name – A protocol is defined as a set of rules that enables computers to exchange information.

- Location of the site
- Name of the organization that maintains the site
- A suffix that identifies the organization

For example, the URL <http://www.niit.com> provides the following information:

- http: - This is the name of the protocol used on WWW.
- www - This Web site is on the WWW.
- niit - This Web site is maintained by the organization named NHT.
- .com - The organization is a business organization.

There are several other suffixes, which can be used in the URL. The suffixes are given in the table.

| Suffix | Description |
|---------------|---|
| .edu | Universities that maintain their own Web sites use this suffix. For example, http://www.jadavpur.edu is the URL of the Web site maintained by Jadavpur University. |
| .net | Organizations that do business in networking use this suffix to maintain their Web sites. For example, http://www.usa.net is the URL of the Web site maintained by an organization that provides e-mail service. |
| .mil | Defence forces that maintain their own Web sites use this suffix. For example, http://www.af.mil is the URL of the Web site maintained by United States Air Force. |
| .gov | Government organizations of various states and countries that maintain their own Web sites use this suffix. For example, http://www.nasa.gov is the URL of the Web site maintained by NASA (National Aeronautical and Space |

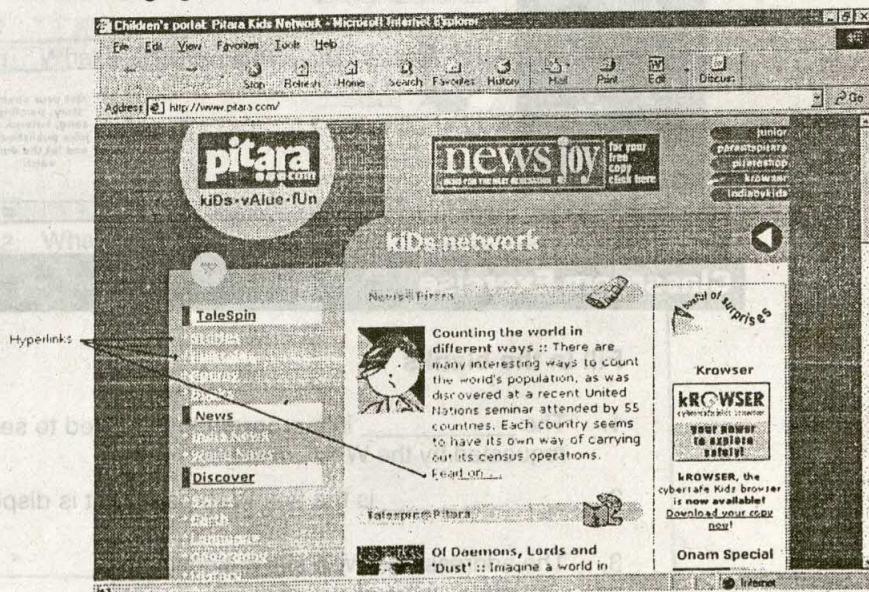
| Suffix | Description |
|---------------|--|
| | Administration), U.S.A. |
| .org | Organizations doing social work that maintain their own Web sites use this suffix. For example, http://www.cry.org is the URL of the Web site maintained by CRY (Child Relief and You). |

After typing the URL of the Web site that you want to visit, you need to press the **Enter** key.

For example, Sujoy wants to visit his favourite Web site named [www.pitara.com](http://www pitara com). To visit his favourite Web site, he needs to perform the following steps:

1. Start Internet Explorer.
2. Type <http://www.pitara.com> in the address bar.
3. Press the **Enter** key.

The home page of www.pitara.com is displayed, as shown in the following figure.



Once Sujoy connects to the home page, he can go to the other Web pages by clicking on the hyperlinks.

Note: When the mouse pointer is positioned over a hyperlink, the mouse pointer changes to a hand (☞).

The following figure displays the Web page that appears when Sujoy clicks on a hyperlink.



Classroom Exercise

Fill in the blanks

1. The _____ is a program that is used to send information requested by the Web browsers.
2. _____ is the first Web page that is displayed to a user.
3. The address of a Web site is known as _____.
4. _____ is the suffix used by defence forces maintaining

their own Web sites.

5. _____ is the suffix used by business organizations that maintain their own Web sites.

6. A _____ enables a user to go from one Web page to another.

True or False

7. Hot Java is an example of Web page.

8. http: is the name of a protocol used on WWW.

9. .org is the suffix used by government agencies.

Answer the following

10. What is a browser?

11. What is a home page?

12. What is a URL?

Summary

- A browser is a program that enables a user to display and interact with a Web page.
- A Web server is a program that is used to send information requested by the Web browsers. It is also used to refer to the computer that runs the server program
- A home page is the first Web page that is displayed to the user, when he or she connects to a Web site.
- HTML is a language that is used for creating Web pages.
- The address of a Web site is known as **URL (Uniform Resource Locator)**.
- A URL contains the name of the protocol, the location of the Web site, the name of the organization that maintains the Web site, and the suffix that identifies the organization.

Machine Room Session

Machine Room Exercise

1. You went to stay at a friend's place where you decided to have a party. You decided to make Baked Cheese Prawns but did not remember the recipe properly. Go to the Amul Web site at www.amul.com and search for this recipe and also browse the site for any other interesting recipe. Also look at interesting advertisements of Amul.



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